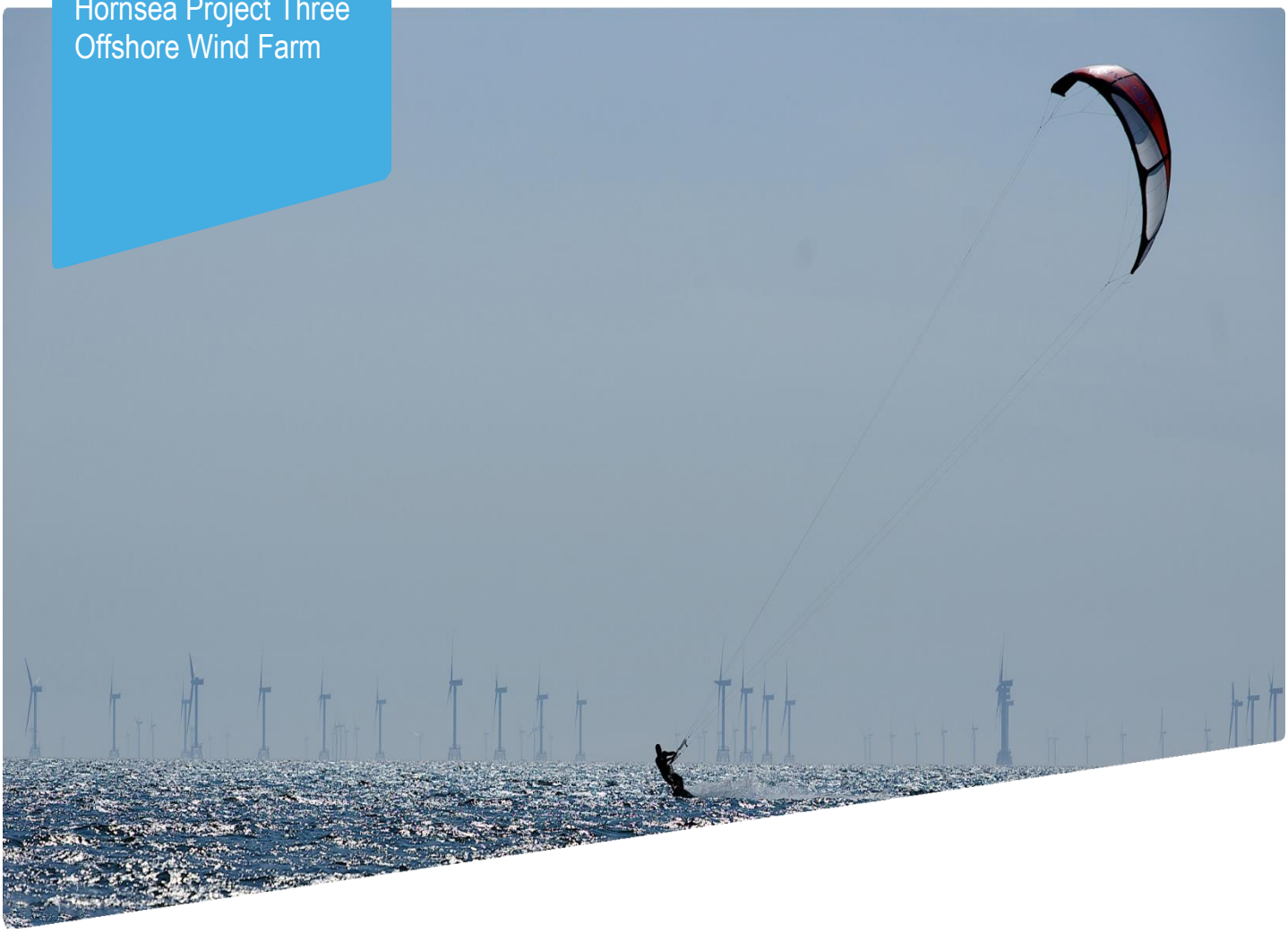
Hornsea Project Three
Offshore Wind Farm



Hornsea Project Three

Offshore Wind Farm

Applicant's Response to Highways England Briefing Note 01A

Date: November 2018

Hornsea 3
Offshore Wind Farm

Ørsted

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Ørsted

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Front cover picture: Kite surfer near a UK offshore wind farm © Orsted Hornsea Project Three (UK) Ltd., 2018.

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Appendices

Revision History

Version	Date	Author	Context
1	November 2018	Create Consulting Ltd	Final version for issue

Acronyms

Acronym	Definition
AADT	Annual Average Daily Traffic
ATC	Automatic Traffic Counter
DfT	Department for Transport
DoS	Degree of Saturation
HGVs	Heavy Goods Vehicles
LPA	Local Planning Authority
NPPF	National Planning Policy Framework
TEMPRO	Trip End Model presentation Programme
PCU	Passenger Car Units
PRC	Practical Reserve Capacity
PRoW	Public Rights of Way

1. Introduction

1.1 This document provides a response to the issues raised by AECOM on behalf of Highways England (HE) in the Briefing Note 01A (BN 01A) dated 17th October 2018 and clarification where appropriate. BN 01A is included as Appendix A of this response.

1.2 BN 01A builds upon an earlier briefing note issued by AECOM (BN01) which related to the Preliminary Environmental Information Report (PEIR) prepared for the proposed Hornsea Three Wind Farm. BN01A therefore provides feedback as to whether issues raised by AECOM (in BN01) have been addressed in the updated Transport Assessment (v2) and Transport Assessment Clarifications dated September 2018, which are provided as Appendix 31 and 32 in the Applicant's response to Deadline 1, as well as identifies any outstanding matters of concern.

2. Highways England Comments/Create Response

2.1 The BN01A breaks down the evaluation of the transport submissions into specific sections for review, these have been emulated below with Create's response to each section where necessary.

Policy Considerations

2.2 The issue regarding Circular 02/2013 has now been clarified at para 1.2.1.3 of the Transport Assessment v2 (hereafter referred to as TA v2) to the satisfaction of AECOM.

Main Impacts

2.3 Paragraph 11 of the BN01 states:

"Having carried out a review of the documents, AECOM consider the principal impacts likely to be of concern to Highways England will be:

- *The impact on the A47 at Easton and the A11 at Hethersett of the construction of TT cable crossings under the carriageway of the Trunk Road;*
- *The relationship between the works proposed at these locations and the RIS schemes for the A47 between North Tuddenham and Easton and for the A11/A47 Thickthorn junction.*
- *The impact of HGV traffic accessing construction sites and the construction compound via junctions and accesses on the A11 and A47 in the vicinity of Easton, Honingham and Hethersett;*
- *The impact of HGV traffic associated with the construction of a new substation adjacent to the SRN at Swardeston;*
- *The impact of HGV traffic carrying materials between the construction compound and the work sites."*

2.4 AECOM confirmed in BN01A that there is nothing in the TA (v2) to suggest that the main impacts of concern to Highways England will be other than these.

Impact Assessments

2.5 Paragraphs 12-14 of BN01 states:

"The PEIR proposes use of the Guidance on the Environmental 12. Assessment of Road Traffic (GEART) to determine the significance of environmental impacts. The TA is to be prepared in accordance with the (now withdrawn) DfT Guidance on Transport Assessment.

The PEIR proposes that impacts will be screened in accordance with the following criteria:

- *Highway links with an increase in flow (or an increase in HGV flow) of more than 30%; and*
- *In specifically sensitive areas, highway links with an increase in flow (or an increase in HGV flow) of more than 10%.*

Highway links where the increase in total flow or HGV flows are predicted to be less than 10% will be screened out of the assessment. AECOM acknowledge that this is the 'industry standard' approach for the sort of impacts considered in an EIA. However, it should be noted that Circular 02/2013 can require detailed scrutiny of traffic capacity and road safety impacts at significantly lower thresholds."

2.6 The AECOM response to this in BN01A is:

"The TA does not explicitly acknowledge this point. However traffic flow increases of less than 10% are tabulated in Tables 1.7 & 1.8 of the TA and therefore this comment has de facto been addressed. Further consideration of the significance of the increases reported in the TA is discussed in the

2.7 Paragraph 16 of BN01 states:

"It should be noted that the way the HGV movements are presented does not always allow the potential useage of individual access points on the SRN to be quantified. AECOM recommend that an estimate be made of the numbers likelty to arise from each construction compound and site access. This is particularly important for construction compound C1, which is to be accessed via the A47/B1535 junction at Honingham and in section 7.10, its traffic generation is aggregated with ten individual construction access points, the majority of which would be served from the north, via the A1067. So it is not possible to determine the extent to which traffic flows at the A47/B1535 junction would increase. This should be clarified in the TA."

2.8 The AECOM response to this in BN 01 is:

'Table 1.5 of the TA clarifies the split between construction access points accessed via the A1067 and via the A47 and Appendix A of the TA allocates traffic accordingly. However, the proposed route for traffic accessing site access 19 (C) is not stated in Table 1.5 nor in Appendix A. This should be clarified. In addition, construction compound C1 is no longer located on the B1535 and the TA appears to propose that no construction traffic will be routed via the B1535.'

2.9 To confirm, the construction compound C1 is no longer being proposed as being accessed off the B1535 and therefore, no construction traffic should be assigned to/from this specific location.

2.10 Paragraph 17 of BN01 states:

"AECOM note that no similar exercise appears to have been undertaken in respect of either motor vehicle trips generated by the workforce; or by HGVs on the wider network, moving materials between quarries, railheads and/or ports and the cable corridor. Many of these routes will utilise substantial lengths of the SRN and may be significant at locations close to the source of the materials, for example at the first point of access to the SRN from the selected base port. These additional sources of traffic should be assessed in the TA."

2.11 The AECOM response to this in BN01A is:

"The TA acknowledges this point at paras 1.6.2.19 and 1.6.2.27, where two alternative percentage distributions of HGV traffic are proposed. Tables 1.6 & 1.7 of the TA assign traffic to the A14 east and west of the study area and to the A11 south. No explicit consideration is given to individual junctions in the vicinity of railheads or base ports and no rationale is given for not doing so. HGV traffic forecast to use the A146 (SE of Norwich) and A140 (S of Norwich) is not tabulated. HGVs are assigned to these routes in the traffic flow diagrams in Appendix B of the TA but the numbers assigned to each of these routes is minimal."

2.12 Paragraph 19 of BN01 states:

"The anticipated construction phasing should be clarified before work on the TA commences because it will be critical to ensuring that the correct scenarios are assessed."

The AECOM response to this in BN 01A is:

'The inter relationship between the wind farm proposal and the RIS schemes is referenced at para 1.7.9.1 of the TA, where it states that initial discussions have taken place (although it says that these have been with NCC, not with HE – presumably a misprint) and that further discussions will take place post submission. Provided these discussions are meaningful and ongoing, this point has been addressed.'

2.13 Create can confirm that said discussions are both meaningful and ongoing.

Location-Specific Impacts

A47 Junction with B1535 west of Honingham

2.14 The access (referred to above) is no longer proposed via B1535 and therefore, no further action is required relating to this matter.

A47 Junction with Taverham Road east of Honingham

2.15 Paragraph 26 of BN01 states:

"In the event that the Wind Farm construction precedes the opening of the RIS scheme, AECOM recommend that, in the TA, this junction should be assessed in the following ways:

- *An assessment of the current junction layout against the requirements of DMRB design standard TD42;*
- *An assessment of the collision record of this junction;*

- *If the traffic flow increases are sufficient to warrant it, a PICADY model to determine any capacity problems associated with this junction;*
- *Consideration should be given to geometric improvements to facilitate the use of this junction by larger numbers of HGVs;*
- *Alternatively, consideration should be given to banning the right turns into and out of Taverham Road for construction vehicles, making use of the roundabouts at the east end of Honingham bypass and at Easton to facilitate the resulting U-turn movements."*

2.16 The AECOM response to this in BN01A is:

"No assessments of this nature are included in the TA or its supporting documentation.

Table 1.5 of the TA lists two construction site accesses as being accessed via the A47/ Taverham Road junction. These are listed as sites 16 (B) and 17 (B) although on the plan at Sheet 7 of ES Annex 7.8, it would seem more logical to serve sites 17 (B) and 18 (B) from Taverham Road and 16 (B) from Church Lane, Easton. Appendix A shows the total traffic generated by sites 16 (A), 17 (B) and 18 (B) as being 31 two-way light vehicle and 99 two-way HGV movements per day. It would be reasonable to assume that this traffic will be split equally across the three access points, therefore the A47/ Taverham Road junction would have to accommodate up to 66 two-way HGV movements per day. This is unlikely to require a junction capacity model. However, the underlying suitability of this older-style priority junction needs to be questioned for the reasons stated at para 24 above. An assessment of the junction's layout against DMRB standards and the provision of HGV swept path plots to demonstrate its adequacy to accommodate an influx of larger vehicles, together with an assessment of the collision record here would be advisable. It is of note that a collision analysis was undertaken for the A47 to the west of Easton (TA paras 1.4.2.16 – 1.4.2.23) but this covered a section some 2-3km to the west of here and did not include this junction.

Further assessments as recommended above would be beneficial. Alternatively, from the perspective of the safe and free flow of traffic on the Trunk Road, it might be preferable to serve all three access points 16(B) 17(B) and 18(B) from the A47/ Easton roundabout via Church Lane (highway link 126) rather than from Taverham Road (link 125)."

2.17 Due to the low levels of proposed traffic associated with Hornsea Three, Create will not be providing a junction capacity model for the A47/Taverham Road junction.

2.18 Create has undertaken swept path analysis of HGV vehicles at the A47/Taverham Road junction to determine the suitability of the existing road layout and identify and also provide and account of existing geometry and visibility at this junction (A47/Taverham Road). The swept path analysis and geometric and visibility assessment is provided at Appendix B. There would appear to be no significant deficiencies at this location with respect to major/minor arm geometry and levels of visibility readily satisfy 215m x 4.5m x 215m for an estimated 100kph design speed. We also note the inclusion of merge and diverge tapers at this junction, which typically aid the movements of larger, slower moving vehicles to/from the minor arm.

2.19 It is noted that there are currently some issues with overrunning on the minor arm of the A47/Taverham Road junction, however, the track run analysis indicates that the required Hornsea Three HGV movements would be contained within the existing kerb lines. The existing overrunning appears to be principally associated with existing agricultural vehicles. This junction would, however, be included within the overall Construction Traffic Management Plan for the Hornsea Three scheme and should there be significantly increased wear and tear at this junction that can be directly associated with the scheme, then remedial action can be taken accordingly.

2.20 To address the AECOM concerns regarding the A47/Taverham Road junction a review of road safety has been carried out using the "Crashmap" recorded personal injury accident database. The review includes three years of accident data to the end of 2017 as shown in Figure 2.1 below:

Figure 2.1 – Crashmap A47/Taverham Road Junction Assessment

2.21 The Crashmap data depicted in Figure 2.1 shows that only one accident occurred on the A47 immediately adjacent to the Taverham Road junction. This accident is classified as 'Slight' in severity and was recorded on the 15 January 2016 involving two vehicles resulting in one casualty.

2.22 Figure 2.1 also shows an accident recorded on Taverham Road approximately 35m north of the junction with the A47. This accident occurred on 26 July 2017 and is classified as 'Serious' in severity involving two vehicles and one casualty.

2.23 The next closest accident to the A47/Taverham Road junction was recorded on 4 May 2018, approximately 50m to the west on the A47. This incident was classified as 'Slight' in severity involving two vehicles and two casualties.

2.24 The two accidents shown to the east of Taverham Road along the A47 are more closely linked to the Blind Lane junction to the south and therefore are not relevant to this assessment.

2.25 In addition to the Crashmap data analysis outlined above, further analysis has been undertaken using collision data obtained from Norfolk County Council for an extended five year period to the end of August 2018, included at Appendix C. This more detailed account of collision data shows there to be no issues with HGV traffic turning to/from Taverham Road within the immediate vicinity of the A47/Taverham Road junction.

2.26 Consequently, it can be asserted that there are no prevailing accident issues associated with the A47/Taverham Road junction arrangement and this is likely to remain so with the introduction of Hornsea Three.

2.27 In view of the geometric, visibility and collision data analysis outlined above, there would appear to be no significant issues with use of the A47/Taverham Road junction in connection with Honsea Three and therefore, use of an alternative local route (i.e. via the A47/Church Lane roundabout at Easton) via Church Lane would not appear to be necessary, in this case.

A47 to west of Easton

2.28 Direct access from the A47 no longer proposed, therefore, no action is required.

A47 Easton Roundabout

2.29 Create will not be providing either a collision or a junction capacity assessment for this location due to the short time frame (between 106 and 158 days) over which the impact would take place.

A47/A1074 Longwater and A47/B1108 Colney Junctions

2.30 Paragraph 33 of BN01 states:

"The PEIR indicates that a number of HGV access routes will pass through, join and/or leave the A47 Trunk Road at the A1074 Longwater and B1108 Colney junctions (see PEIR Figure 7.1, sheet 7). AECOM recommend that, in the TA, if the traffic flow increases are sufficient to warrant it, the impact of the proposals on the capacity of these junctions should be assessed using an ARCADY model."

2.31 The AECOM response to this in BN01A is in two parts:

"No junction capacity models are included for these junctions.

As regards the A47/ A1074 Longwater junction, the TA appears to assign no construction traffic via the A1074 or via Dereham Road or Long Lane to the west and south of the junction respectively. The impact may therefore be minimal, comprising the proportion of the workforce who will find this the most convenient route from home addresses in Norwich to the construction sites to the west of the City. This type of trip does not appear to be quantified in the TA and, arguably, should have been."

2.32 As indicated on the accompanying traffic flows diagrams at Appendix D, the great majority of staff movements will not take place during the conventional AM (0800-0900hrs) and PM (1700-1800hrs) network peak periods and consequently, the impact will be minimal. The peak periods for staff movements associated with Hornsea Three would be 0700-0800hrs and 1800-1900hrs. Therefore, Create will not be providing any additional analysis at this location.

and;

As regards the A47/ B1108 junction, Appendix A of the TA implies an increase in flow of 31 light vehicle and 95 heavy vehicle two-way trips per day using the B1108 to access construction sites serving cable section 17. This scale of increase is unlikely to require either a collision or junction capacity assessment.

2.33 No collision or junction capacity assessment of the A47/ B1108 junction is to be provided.

A11 to the south-east of Hethersett

2.34 Create will not be providing either a collision or a junction capacity assessment due to the level of proposed traffic and the short time frame (163 days) over which the impact would take place.

A11/ A47 Thickthorn Junction

2.35 Create will not be providing either a collision or a junction capacity assessment due to the level of proposed traffic and the short time frame (between 163 and 231 days) over which the impact would take place.

A47 to the west of the Harford Junction

2.36 Create is in agreement with the AECOM statement within BN 01, that the previously raised issue regarding the A47 to the west of the Harford Junction has now been resolved.

A47/ A140 Harford Junction

2.37 In line with the AECOM response Create will not be providing either a collision or a junction capacity assessment due to the time frame (up to 825 days) over which the impact would take place.

2.38 As indicated on the accompanying traffic flows diagrams at Appendix E, the great majority of staff movements will not take place during the conventional AM (0800-0900hrs) and PM (1700-1800hrs) network peak periods and consequently, the impact will be minimal. The peak periods for staff movements associated with Hornsea Three would be 0700-0800hrs and 1800-1900hrs.

2.39 Nevertheless, further analysis has been requested by AECOM for this junction with the response by Create outlined as follows, for the review period 0700-1000hrs.

2.40 The worst-case "Phase 4 max staff" development scenario for the construction would give rise to an estimated total of 57 additional movements towards the A140 northbound from the A47 eastbound off-slip and 81 additional movements from the A47 westbound off-slip, also bound for the A140 northbound during the AM peak period.

2.41 It should be noted, however, that this traffic would be managed such that it did not coincide with the conventional 0800-0900hrs network peak period and other measures such as car-sharing among staff would also be promoted by the Hornsea Three scheme to minimise its overall traffic impact on the local highway network.

2.42 The worst-case "Phase 4 max staff" scenario would give rise significantly fewer impacts at this junction in the PM peak period with a total of 30 additional movements towards the A140 southbound from the A47 eastbound off-slip and 3 additional movements from the A47 westbound off-slip, also bound for the A140 southbound.

2.43 HGV impact at this junction would be minimal amounting to less than 20 movements on the A47 eastbound and westbound slips in the PM peak period.

A47/ A146 Trowse and A47/ A1074 Postwick Junctions

2.44 Create is in agreement with the AECOM assessment the increases in traffic at these junctions associated with Hornsea Three as presented in the TA are not of the magnitude to warrant further collision or junction capacity assessment.

2.45 AECOM also state that collision or capacity assessments for the A1270 are also not necessary due to the temporary nature of the construction period with any single construction site active for up to 2.25 years. Create will therefore, not be undertaking any collision or junction capacity assessment.

3. Summary and Conclusions

3.1 This document comprehensively addresses those issues raised by AECOM on behalf of Highways England in BN01A dated 17th October 2018.

3.2 The additional information and clarifications provided herein mean that all points raised should now be satisfactorily addressed and there should be no further areas of concern for Highways England in respect of the Hornsea Three proposals.

Appendix A- Briefing Note 01A 17th October

Briefing Note 01

Project:	**Highways England Spatial Planning Arrangement 2016-2020**	Job No:	**60506522 / DN055.001**
Subject:	**Hornsea Project Three Offshore Wind Farm – Preliminary Environmental information Report**		
Prepared by:	**Andrew Cuthbert**	Date:	**12th September 2017**
Checked by:	**Kelly Davis**	Date:	**15th September 2017**
Verified by:	**Liz Judson**	Date:	**15th September 2017**
Approved by:	**Andrew Cuthbert**	Date:	**15th September 2017**
Updated by:	**Andrew Cuthbert**	Date:	**17th October 2018**

This document aims to provide an answer to the question: *Have the issues raised by AECOM's review of the PEIR and set out in Briefing Note 01 (BN 01) dated September 2017, been addressed in the Transport Assessment (TA) that accompanies the Environmental Statement (ES)?*

Throughout this document, the text of BN 01 is repeated verbatim. Comments explaining the extent to which the September 2018 TA responds to the issues raised in BN 01 are annotated in red text.

Introduction

1. This Briefing Note provides a response to the Preliminary Environmental Information Report (PEIR) produced by RPS on behalf of Dong Energy in respect of the proposed Hornsea Project Three Wind Farm (the Wind Farm), dated July 2017.

2. The PEIR sets out the scope and methodology proposed for the Environmental Statement (ES), which will form part of the Development Consent Order (DCO) application for the Wind Farm. The PEIR is being consulted on until 20th September 2017, following which the comments received from consultees will be used to inform the ES, which (it is intended) will be submitted during the second quarter of 2018. It appears that some preliminary consultation has already been held with Norfolk County Council, as Local Highway Authority, during the period December 2016 to May 2017. Highways England do not appear to have been included in that stage of consultation.

3. The Wind Farm itself will be located off the coast. Electricity generated will make landfall at Weybourne, on the north Norfolk coast, and will access the National Grid at a substation adjacent to the A47 Trunk Road at Dunston, to the south of Norwich. The power cables linking the Wind Farm with the substation will be accommodated in an underground trench, running broadly north-south, to the west of Norwich. This cable corridor will cross the A47 to the west of Easton and the A11 to the south of Hethersett using trenchless technology (TT).

4. Chapter 7 of the PEIR sets out the proposals relating to the transport and traffic implications of the construction of the on-shore infrastructure, including the cable corridor and the substation. It sets out detailed proposals for access to construction sites; the scope and methodology for a Transport Assessment (TA) and for the assessment of traffic impacts associated with the proposed Wind Farm.

5. The cable corridor is divided into 34 sections, to be served from 76 access points and several construction compounds. Several of the access points and one of the construction compounds

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(Compound 1) will use a number of existing junctions on the A11 and A47 Trunk Roads for access, including (in two cases) proposals for new direct access from the Strategic Road Network (SRN) itself.

6. One question which does not appear to have been addressed at this stage, is that of the sources of construction materials, for example quarries, railheads and/or a base port, and the movement of material between these locations and the construction sites. In addition, very little is said in the PEIR about traffic generated by the workforce.

7. Throughout this document, AECOM's key recommendations for both access arrangements and the content of a TA are identified by the use of **bold, underlined type.**

Documents Reviewed

8. As part of this review, AECOM has reviewed the following documents:
   - The July 2017 Preliminary Environmental Information Report (PEIR) – Chapter 7 Traffic & Transport;
   - PEIR Annex 7.1 – a 'Skeleton' TA;
   - Figures 7.1, 7.2 and 7.3 illustrating on an OS background potential work sites, construction access locations, construction compounds, access routes for heavy goods vehicles (HGVs), potential trenchless technology (TT) road and other crossings and receptors identified as 'sensitive receptors'.

   It should be noted that the documents listed above are thos reviewed as as September 2017 and that further documents, principally the Tansport Assessment (TA) submitted with the Environmental Statement (ES) and its supporting Annexes and and Figures.

Policy Considerations

9. The PEIR sets out the planning policies the document has been prepared in accordance with. These include Planning Policy NPS (National Policy Statement) for Energy EN-01 (which specifies that a TA will be required) and National Planning Policy Framework (NPPF) chapter 32.

10. No specific reference is made to DfT Circular 02/2013 in the PEIR (although it is listed as a reference in the skeleton TA). **AECOM recommend that this document and its requirements are explicitly acknowledged in any future work carried out in support of the Wind Farm. Circular 02/2013 is referenced at para 1.2.1.3 of the TA.**

Main Impacts

11. Having carried out a review of the documents, AECOM consider the principal impacts likely to be of concern to Highways England will be:
    - The impact on the A47 at Easton and the A11 at Hethersett of the construction of TT cable crossings under the carriageway of the Trunk Road;
    - The relationship between the works proposed at these locations and the RIS schemes for the A47 between North Tuddenham and Easton and for the A11/A47 Thickthorn junction.
    - The impact of HGV traffic accessing construction sites and the construction compound via junctions and accesses on the A11 and A47 in the vicinity of Easton, Honingham and Hethersett;
    - The impact of HGV traffic associated with the construction of a new substation adjacent to the SRN at Swardeston;
    - The impact of HGV traffic carrying materials between the construction compound and the work sites.

There is nothing in the TA to suggest that the main impacts of concern to Highways England will be other than these.

Impact Assessments

12. The PEIR proposes use of the Guidance on the Environmental Assessment of Road Traffic (GEART) to determine the significance of environmental impacts. The TA is to be prepared in accordance with the (now withdrawn) DfT Guidance on Transport Assessment.

13. The PEIR proposes that impacts will be screened in accordance with the following criteria:

    - Highway links with an increase in flow (or an increase in HGV flow) of more than 30%; and
    - In specifically sensitive areas, highway links with an increase in flow (or an increase in HGV flow) of more than 10%.

14. Highway links where the increase in total flow or HGV flows are predicted to be less than 10% will be screened out of the assessment. AECOM acknowledge that this is the 'industry standard' approach for the sort of impacts considered in an EIA. **However, it should be noted that Circular 02/2013 can require detailed scrutiny of traffic capacity and road safety impacts at significantly lower thresholds.** **The TA does not explicitly acknowledge this point. However traffic flow increases of less than 10% are tabulated in Tables 1.7 & 1.8 of the TA and therefore this comment has *de facto* been addressed. Further consideration of the significance of the increases reported in the TA is discussed in the sections which follow.**

15. The PEIR contains a schedule at section 7.10, of HGV movements likely to be generated by each section of the cable corridor. Details of the assumptions underlying these calculations are contained in Annex 7.4, with potential HGV routes detailed in Annex 7.6. However, the calculations themselves are not presented for scrutiny.

16. It should be noted that the way the HGV movements are presented does not always allow the potential useage of individual access points on the SRN to be quantified. AECOM recommend that an estimate be made of the numbers likelty to arise from each construction compound and site access. This is particularly important for construction compound C1, which is to be accessed via the A47/B1535 junction at Honingham and in section 7.10, its traffic generation is aggregated with ten individual construction access points, the majority of which would be served from the north, via the A1067. So it is not possible to determine the extent to which traffic flows at the A47/B1535 junction would increase. **This should be clarified in the TA.** **Table 1.5 of the TA clarifies the split between construction access points accessed via the A1067 and via the A47 and Appendix A of the TA allocates traffic accordingly. However, the proposed route for traffic accessing site access 19 (C) is not stated in Table 1.5 nor in Appendix A. This should be clarified. In addition, construction compound C1 is no longer located on the B1535 and the TA appears to propose that no construction traffic will be routed via the B1535.**

17. AECOM note that no similar exercise appears to have been undertaken in respect of either motor vehicle trips generated by the workforce; or by HGVs on the wider network, moving materials between quarries, railheads and/or ports and the cable corridor. Many of these routes will utilise substantial lengths of the SRN and may be significant at locations close to the source of the materials, for example at the first point of access to the SRN from the selected base port. **These additional sources of traffic should be assessed in the TA.** **The TA acknowledges this point at paras 1.6.2.19 and 1.6.2.27, where two alternative percentage distributions of HGV traffic are proposed. Tables 1.6 & 1.7 of the TA assign traffic to the A14 east and west of the study area and to the A11 south. No explicit consideration is given to individual junctions in the vicinity of railheads or base ports and no rationale is given for not doing**

so. HGV traffic forecast to use the A146 (SE of Norwich) and A140 (S of Norwich) is not tabulated. HGVs are assigned to these routes in the traffic flow diagrams in Appendix B of the TA but the numbers assigned to each of these routes is minimal.

18. No acknowledgement appears to be made in the PEIR of the potential inter-relationship between the construction of the cable corridor and the two RIS schemes (A47 North Tuddenham to Easton and A47/A11 Thickthorn Junction) currently being promoted by Highways England within the study area. AECOM could not find any information as to the potential timescale over which the construction of the Wind Farm's onshore infrastructure will take place and therefore which of the following may apply:
    - Construction of the Wind Farm onshore infrastructure proceeds ahead of the RIS schemes and therefore the impacts and access arrangements need to reflect the current road network as it exists today;
    - Construction of the Wind Farm onshore infrastructure takes place after the RIS schemes open to traffic and therefore the impacts and access arrangements need to reflect the road network as it will exist with the RIS schemes in place;
    - The two construction periods overlap, in which case a much more complex situation will arise, which will need to be carefully managed.

19. **The anticipated construction phasing should be clarified before work on the TA commences because it will be critical to ensuring that the correct scenarios are assessed. The inter relationship between the wind farm proposal and the RIS schemes is referenced at para 1.7.9.1 of the TA, where it states that initial discussions have taken place (although it says that these have been with NCC, not with HE – presumably a misprint) and that further discussions will take place post submission. Provided these discussions are meaningful and ongoing, this point has been addressed.**

Location-Specific Impacts

20. The following locations are likely to be of specific interest to Highways England and the potential location-specific impacts should be fully assessed in the forthcoming TA. Reference is made to construction site access locations A53 – A76 and construction compound C1. These are described in paragraphs 7.6.4.54 – 82, 7.6.6.2 and 7.6.7.54 – 7.6.7.78 of the PEIR and their locations are illustrated on Figures 7.1 & 7.2, sheets 6, 7, 8 and 9 of PEIR Annex 7.2.

A47 Junction with B1535 west of Honingham

21. This is a ghost-island type priority T-junction, which forms a staggered junction with Berrys Lane opposite. It is located on a relatively straight section of the A47 subject to the national speed limit. From an examination of Google street view imagery, it appears to broadly comply with DMRB design standard TD42. The B1535 will serve as the primary access to construction compound C1 and construction site access A53 (PEIR paras 7.6.4.54 and 7.6.6.2 and Figure 7.1, sheets 6 & 7). As such it is anticipated to carry a significant amount of light and heavy vehicle traffic.

22. It is likely that this junction will be superseded by the junction arrangements required to serve the A47 North Tuddenham to Easton RIS scheme. **The inter-relationship between the Wind Farm scheme and the RIS scheme should be investigated and acknowledged in the TA. See response to Para 19 above.**

23. In the event that the Wind Farm construction precedes the opening of the RIS scheme, **AECOM recommend that, in the TA, this junction should be assessed in the following ways:**

- **An assessment of the current junction layout against the requirements of DMRB design standard TD42;**
- **An assessment of the collision record of this junction; and**
- **If the traffic flow increases are sufficient to warrant it, a PICADY model to determine any capacity problems associated with this junction.**

Construction compound C1 is no longer proposed. In addition, Table 1.5 of the TA lists no construction site accesses as being located on, or accessed via, the B1535. These recommendations therefore no longer apply.

A47 Junction with Taverham Road east of Honingham

24. This is a simple priority T-junction, which forms a staggered junction with Blind Lane opposite. As such it does not provide right turning lanes for vehicles waiting to turn right into the minor arms of the junction. From an examination of Google street view imagery, Taverham Road appears to be of limited width, with corner radii that may not be suitable for use by large numbers of HGVs. The junction is on the outside of a large radius bend and visibility for A47 westbound through traffic appears to be sub-standard. Taverham Road will serve as the primary access to construction site access A54 (PEIR para 7.6.4.54 and Figure 7.1, sheets 6 & 7).

25. It is likely that this junction will be superseded by the junction arrangements required to serve the A47 North Tuddenham to Easton RIS scheme. **The inter-relationship between the Wind Farm scheme and the RIS scheme should be investigated and acknowledged in the TA.** **See response to Para 19 above.**

26. In the event that the Wind Farm construction precedes the opening of the RIS scheme, **AECOM recommend that, in the TA, this junction should be assessed in the following ways:**

- **An assessment of the current junction layout against the requirements of DMRB design standard TD42;**
- **An assessment of the collision record of this junction;**
- **If the traffic flow increases are sufficient to warrant it, a PICADY model to determine any capacity problems associated with this junction;**
- **Consideration should be given to geometric improvements to facilitate the use of this junction by larger numbers of HGVs;**
- **Alternatively, consideration should be given to banning the right turns into and out of Taverham Road for construction vehicles, making use of the roundabouts at the east end of Honingham bypass and at Easton to facilitate the resulting U-turn movements.**

No assessments of this nature are included in the TA or its supporting documentation.

Table 1.5 of the TA lists two construction site accesses as being accessed via the A47/ Taverham Road junction. These are listed as sites 16 (B) and 17 (B) although on the plan at Sheet 7 of ES Annex 7.8, it would seem more logical to serve sites 17 (B) and 18 (B) from Taverham Road and 16 (B) from Church Lane, Easton. Appendix A shows the total traffic generated by sites 16 (A), 17 (B) and 18 (B) as being 31 two-way light vehicle and 99 two-way HGV movements per day. It would be reasonable to assume that this traffic will be split equally across the three access points, therefore the A47/ Taverham Road junction would have to accommodate up to 66 two-way HGV movements per day. This is unlikely to require a junction capacity model. However, the underlying suitability of this older-style priority junction needs to be questioned for the reasons stated at para 24 above. An assessment of the junction's layout against DMRB standards and the provision of HGV swept path plots to demonstrate its adequacy to accommodate an influx of larger vehicles, together with an assessment of the collision record here would be advisable. It is of note

that a collision analysis was undertaken for the A47 to the west of Easton (TA paras 1.4.2.16 – 1.4.2.23) but this covered a section some 2-3km to the west of here and did not include this junction.

Further assessments as recommended above would be beneficial. Alternatively, from the perspective of the safe and free flow of traffic on the Trunk Road, it might be preferable to serve all three access points 16(B) 17(B) and 18(B) from the A47/ Easton roundabout via Church Lane (highway link 126) rather than from Taverham Road (link 125).

A47 to the west of Easton

27. The cable corridor will pass under the A47 approximately 360m to the west of the existing Easton roundabout. This will require temporary site accesses to facilitate the TT crossing proposed, in addition to the general cable corridor work to the north and south of the Trunk Road. The PEIR (paras 7.6.4.56 & 57 and Figure 7.1, sheet 7) proposes that two direct accesses from the A47 would be created at this point (reference A56), by making use of an existing layby on the south side of the carriageway and an existing agricultural field access on the north side. **AECOM do not regard this as a satisfactory proposal and advise Highways England to resist it. Direct access from the A47 is no longer proposed (Access to works plan sheet 25 clarifies this). This issue is therefore resolved.**

28. To the south, the PEIR identifies an alternative possibility, making use of a redundant section of the A47 extending west from Dereham Road in the vicinity of St Peter's Church, Easton. To the north, access would appear possible from the northern arm of Church Lane, to the north of its junction with the A47, crossing agricultural land to reach the cable corridor. In both cases, the result would be that construction traffic accesses the A47 using the existing Easton Roundabout. **AECOM recommend that further consideration be given to these alternatives. If either or both of them are pursued, the implications on the capacity of the A47 Easton roundabout should be assessed using an ARCADY model. No ARCADY model has been provided for the A47/ Easton roundabout. See also response to point 32, below.**

29. The cable corridor will cross the line of the new A47 North Tuddenham to Easton RIS scheme, which AECOM understand will run to the north of the current A47 in this vicinity, and will include the creation of a new junction which will supersede the current Easton roundabout. **The inter-relationship between the Wind Farm scheme and the RIS scheme should be investigated and acknowledged in the TA. See response to Para 19 above.**

A47 Easton Roundabout

30. Site accesses A57 – A59 will have their primary access via Dereham Road, Easton and will access the SRN at the A47 Easton Roundabout (PEIR paras 7.6.4.57 – 58 and Figure 7.1, sheet 7). To the north, Church Lane is indicated as a second possible access to site access A55 (Figure 7.1, sheet 7). Traffic accessing site access A56 will also pass through this junction, whether it is taken directly from the A47 to the west of Easton or via the local road network.

31. It is likely that this junction will be superseded by the junction arrangements required to serve the A47 North Tuddenham to Easton RIS scheme. **The inter-relationship between the Wind Farm scheme and the RIS scheme should be investigated and acknowledged in the TA. See response to Para 19 above.**

32. In the event that the Wind Farm construction precedes the opening of the RIS scheme, **AECOM recommend that, in the TA, this junction should be assessed in the following ways:**

    - **An assessment of the collision record of this junction;**

- **If the traffic flow increases are sufficient to warrant it, an ARCADY model to determine any capacity problems associated with this junction.**

No collision assessment or junction capacity model has been provided.

An estimate of the potential significance of the wind farm on this junction can be gained from Tables 1.6/ 1.7 of the TA, where an increase in flow along the A47 to the west of Easton of 161 light and 412 heavy vehicles per day is stated; together with Appendix A of the TA in which an increase in flow using the Church Lane (N) and Church Lane (S) arms of the junction of 62 light and 196 heavy vehicles per day is implied. Table 1.8 of the TA suggests that, for the A47 main line, this translates into an increase in flow of 80 construction staff vehicles per hour in the AM and PM peak hours. Therefore, assuming HGV movements predominantly take place outside of the peak hours, a total increase in flow of 142 (80 + 62) vehicles per peak hour through the junction. This would normally be regarded as sufficient to warrant a collision analysis and a junction capacity model. However, for the construction phase of a development lasting up to 6 years, with the construction sites served by this junction being active for between 106 and 158 days, this may not be regarded as necessary.

A47/ A1074 Longwater and A47/ B1108 Colney junctions

33. The PEIR indicates that a number of HGV access routes will pass through, join and/or leave the A47 Trunk Road at the A1074 Longwater and B1108 Colney junctions (see PEIR Figure 7.1, sheet 7). **AECOM recommend that, in the TA, if the traffic flow increases are sufficient to warrant it, the impact of the proposals on the capacity of these junctions should be assessed using an ARCADY model.**

No junction capacity models are included for these junctions.

As regards the A47/ A1074 Longwater junction, the TA appears to assign no construction traffic via the A1074 or via Dereham Road or Long Lane to the west and south of the junction respectively. The impact may therefore be minimal, comprising the proportion of the workforce who will find this the most convenient route from home addresses in Norwich to the construction sites to the west of the City. This type of trip does not appear to be quantified in the TA and, arguably, should have been.

As regards the A47/ B1108 junction, Appendix A of the TA implies an increase in flow of 31 light vehicle and 95 heavy vehicle two-way trips per day using the B1108 to access construction sites serving cable section 17. This scale of increase is unlikely to require either a collision or junction capacity assessment.

A11 to the south-east of Hethersett

34. The cable corridor would pass under the A11 approximately 1.3km south-west of the A11/A47 Thickthorn junction and approximately 500m to the north-east of its junction with Station Lane, Hethersett (see PEIR Figure 7.1, sheet 8). This will require temporary site accesses to facilitate the TT crossing proposed, in addition to the general cable corridor work to the north and south of the Trunk Road.

35. This section of the A11 is a heavily trafficked high speed dual carriageway. There is one intermediate junction at Station Lane, comprising a pair of left-in, left-out priority T-junctions with no vehicular connection across the A11 itself. From an examination of Google street view imagery, the access to Station Lane (south) appears to be of a relatively high standard with merge and diverge tapers connecting into the minor arm of the junction through large radius corners. The access to Station Lane (north) is of a lower standard, with low radius corners and

no tapers. Although no vehicular access is permitted across the A11 at this point, there is a staggered at-grade pedestrian/ cycle crossing across both carriageways.

36. The PEIR (paras 7.6.4.72-74) indicates that access to route section 28, to the north of the A11 could be achieved via Station Lane. This is not acknowledged as an access route on the plans in Figures 7.1 or 7.2, sheet 8. Figure 7.1, sheet 8 indicates two potential access points, A69a and A69b; however no indication is given as to how vehicles will reach them. In addition, no indication is given as to whether HGVs would be directed to access these points via Station Lane's junction with the A11 or its junction with the B1172. **These issues should be clarified.** Given the relatively low standard of provision at the A11/ Station Lane (north) junction, **AECOM recommend that access to this area for HGVs be achieved solely from the B1172 end of Station Lane.** **Table 1.5 shows that all construction sites served by Station Lane (north) as being accessed via its junction with the B1172 not via its junction with the A11. This issue is therefore resolved.**

37. To access the strip of land between the A11 and the railway (route section 29), the PEIR proposes a new direct access on the A11 itself (access A70: PEIR para 7.6.4.74 and Figure 7.1, sheet 8). **AECOM do not regard this as a satisfactory proposal and advise Highways England to resist it.** **Direct access from the A11 is no longer proposed (Access to Works plan sheet 30 clarifies this). This issue is therefore resolved.**

38. The PEIR (para 7.6.4.74) identifies an alternative way of gaining access to the area, namely by means of Station Lane (south) and the minor road that currently serves the small number of residential dwellings located between the A11 and the railway line. **AECOM recommend that further consideration be given to this alternative**. Station Lane (south) also provides one of two potential accesses to route section 30, construction access point A71. **This recommendation has been acted upon and access to this section of the corridor is now proposed via this access point.**

39. Whatever combination of access points is selected, **AECOM recommend that, in the TA, the A11/ Station Lane junctions should be assessed in the following ways:**

    - **An assessment of the collision record of these junctions; and**
    - **If the traffic flow increases are sufficient to warrant it, an assessment of their capacity using a PICADY model.**

    No collision assessment or junction capacity model has been provided.

    An estimate of the potential significance of the wind farm on this junction can be gained from Tables 1.6/ 1.7 of the TA, where an increase in flow along the A11 at Hethersett of 128 light and 283 heavy vehicles per day is stated; together with Appendix A of the TA in which an increase in flow using the Station Lane (S) arm of the junction of 31 light and 94 heavy vehicles per day is implied. Table 1.8 of the TA suggests that, for the A11 main line, this translates into an increase in flow of 64 vehicles per hour in the AM and PM peak hours. Therefore, assuming HGV movements predominantly take place outside of the peak hours, a total increase in flow of 95 (64 + 31) vehicles per peak hour through the junction. For a relatively modern junction on a dual carriageway in which the minor arm is provided with merge and diverge tapers, this would be regarded as below the level at which a collision analysis and a junction capacity model would be required, particularly for the construction phase of a development lasting up to 6 years, with the construction sites served by this junction being active for 163 days.

40. Although the area of the two schemes is unlikely to overlap, the proposal to upgrade the A47/A11 Thickthorn junction through the RIS scheme could affect the provision of access in this area. For example, the provision of free-flow slip roads between the A47 (east) and A11 (south-west) arms

of the junction could preclude the creation of a site access on the A11 at location A70 because of the need to maintain an appropriate weaving distance between the two, in accordance with DMRB design standard TD22. **AECOM recommend that the inter-relationship between the Wind Farm scheme and the RIS scheme in this area should be investigated and acknowledged in the TA.** **See response to Para 19 above.**

A11/ A47 Thickthorn Junction

41. It is likely that the current form of this junction will be superseded by the junction arrangements proposed as part of the A11/A47 Thickthorn junction RIS scheme. **AECOM recommend that the inter-relationship between the Wind Farm scheme and the RIS scheme should be investigated and acknowledged in the TA.** **See response to Para 19 above.**

42. The PEIR (Figure 7.2, sheet 8) indicates that a number of HGV access routes will pass through, join and/or leave the A11 and A47 Trunk Roads at this junction. In the event that the Wind Farm construction precedes the opening of the RIS scheme, **AECOM recommend that, in the TA, the impact of the proposals on the capacity of this junction should be assessed using an appropriate model.**

    No junction capacity models are included for this junction.

    An estimate of the potential significance of the wind farm on this junction can be gained from Tables 1.6/ 1.7 of the TA, where an increase in flow along the A11 at Hethersett of 128 light and 283 heavy vehicles per day is stated; together with Appendix A of the TA in which an increase in flow using the B1172 arm of the junction of 62 light and 190 heavy vehicles per day is implied. Table 1.8 of the TA suggests that, for the A11 main line, this translates into an increase in flow of 64 vehicles per hour in the AM and PM peak hours. Therefore, assuming HGV movements predominantly take place outside of the peak hours, a total increase in flow of 126 (64 + 62) vehicles per peak hour through the junction. For a junction on the scale of the A11/ A47 Thickthorn junction, an increase of this magnitude is not likely to be regarded as significant, particularly for the construction phase of a development lasting up to 6 years, with the construction sites served by this junction being active for between 163 and 231 days.

A47 to the west of the Harford Junction.

43. The PEIR reveals (Figure 7.1, sheet 9) that a major electricity sub-station is proposed immediately to the south of the A47 and east of the bridge carrying the A47 over the B1113. The PEIR states that access for the construction of this sub-station is to be gained from the B1113 (construction access A75 – PEIR para 7.6.4.81). No suggestion is made that access could be gained directly from the A47. Highways England should be aware of the possibility, however remote, that local residents and amenity groups may seek to promote an alternative access direct from the A47, in order to minimise the impact of construction traffic on the B1113 and other local roads. Should this happen, **AECOM would advise Highways England to resist it, since AECOM would not regard such an access as a satisfactory proposal.** **Direct access from the A47 is not proposed (Access to Works plan sheet 33 clarifies this). Table 1.5 of the TA could be read as implying a direct access from the A47 to the B1113 at this location. However, this must presumably be a misprint, since the assessment contained in Tables 1.6 – 1.8 of the TA clearly show that traffic accessing the site via the B1113 is assigned via the A140 to the north of the A47. This issue is therefore resolved.**

A47/ A140 Harford Junction

44. The PEIR (Figure 7.1, sheet 9) indicates that a number of HGV access routes will pass through, join and/or leave the A47 Trunk Road at this junction. **AECOM recommend that, in the TA, the impact of the proposals on the capacity of this junction should be assessed using an appropriate model.**

    No junction capacity models are included for this junction.

    An estimate of the potential significance of the wind farm on this junction can be gained from Tables 1.6/ 1.7 of the TA, where an increase in flow along the A140 to the north of the A47 of 317 light and 528 heavy vehicles per day is stated. The increase in flows along the A140 to the south of the A47 is not tabulated. However, the diagram at page 186 of the TA quotes a total of 106 light and 248 heavy vehicles per day. Table 1.8 of the TA suggests that, for the A140 north of the A47, an increase in flow of 159 vehicles per hour in the AM and PM peak hours could be expected. Combined with the increase in flows to the south of the A47, this would normally be regarded as sufficient to warrant a collision analysis and a junction capacity model. However, for the construction phase of a development lasting up to 6 years, with the construction site at the proposed sub station being active for up to 825 days (2.25 years), this may not be regarded as necessary.

    It is of note that the TA includes details of a junction capacity assessment using LinSig of the A140/ B1113 junction to the north of the A47. This junction is located on the Local Road Network, some 900m to the north of the A47, and with an intermediate junction (serving a Tesco superstore) located some 650m from the A47 junction. The primary concern for Highways England in respect of the A140/ B1113 junction is that the additional traffic using it to access the B1113 could cause an increase in queueing back towards the A47 at peak times. A 900m long link could accommodate approximately 150 queueing vehicles. The LinSig model results shown in Table 1.9 of the TA indicate a mean maximum queue on this link of up to 63 vehicles in the nearside lane in the AM peak in 2022 with construction traffic in place. Subject to confirmation of this result, this indicates that this will not become a problem to the safe and free flow of traffic at the Strategic Road Network. The TA states that this model was requested by Norfolk County Council, as Local Highway Authority and Highways England would therefore expect NCC to confirm that the model is acceptable and the output in terms of queue lengths can be relied upon.

A47/ A146 Trowse and A47/ A1074 Postwick Junctions

45. These junctions are contained within the study area set out in the PEIR. They are not included within the area shown on Figures 7.1 or 7.2 sheet 9 but the roads they serve are listed in the schedule of links in PEIR Annex 7.3 as links ID 136, 137, 139, 140 and 141.

46. The Trowse junction is relatively remote from the cable corridor and AECOM are unclear as to whether very much of the traffic generated by the Wind Farm construction would use it. This could be the case if, for example, a railhead were established in the vicinity, or if Lowestoft were selected as a base port, thus feeding construction traffic out on to the A47 via this junction.

47. The Postwick junction is also relatively remote from the cable corridor. However, the Norwich Northern Distributor Road (NNDR), when it is completed, will provide a high capacity route into the northern part of the study area and traffic using the NNDR for this purpose will join or leave the A47 at the Postwick junction.

48. **AECOM recommend that, in the TA, the additional traffic flows anticipated through the Trowse and Postwick junctions should be quantified in order to determine whether or not a run of a junction capacity model is required.**

The TA contains details of the additional flows anticipated to use the A146 to the south-east of the Trowse junction and the A1270 Norwich Northern Distributor Road to the north of the Postwick junction.

The A146 flows are not tabulated. However the diagram on page 186 of the TA indicates a total daily flow of 94 light and 142 heavy vehicles by this route, a total of 236 vehicles per day. An increase of this magnitude is not likely to be regarded as significant, particularly for the construction phase of a development lasting up to 6 years, with no single construction site directly served by this junction.

The A1270 flows are shown in Table 1.7 of the TA as 1,093 vehicles per day, of which 629 are heavy vehicles. Table 1.8 of the TA translates this into a peak hourly flow of 232 vehicles per hour in the AM and PM peaks. This would normally be regarded as sufficient to warrant a collision analysis and a junction capacity model. However, for the construction phase of a development lasting up to 6 years, with any single construction site active for up to 2.25 years, this may not be regarded as necessary.

It should be noted that there is a misprint in the title of the traffic flow diagram on pages 153 and 186 of the TA: relative to the flows tabulated in Table 1.7 of the TA, the non-bold figures on the diagrams represent light vehicles, not total vehicles, and therefore the bold and non-bold figures on the diagrams need to be added together to obtain the total flows on the links concerned.

The Table which follows summarises the recommendations in respect of each of the locations considered.

Location	Issue	Recommendation
A47/ B1535 junction	Underlying suitability of older-style priority junction on unimproved section of A47	Access no longer proposed via B1535. No action required.
A47/ Taverham Road	Underlying suitability of older-style priority junction on unimproved section of A47	Potential need for an assessment of the layout against DMRB, a collision analysis, swept path plots to confirm the ability of the junction to accommodate an increase in HGV movements; Alternatively, use the A47/ Easton roundabout instead of Taverham Road to serve construction sites 16(B), 17(B), 18(B). The route for vehicles seeking access to site 19 (C) should be clarified.
A47 to the west of Easton	Direct access from A47 not acceptable to Highways England.	Direct access from A47 no longer proposed. No action required.
A47 Easton roundabout	Traffic assigned to the minor roads to the north and south of the A47 via this junction.	Unlikely to require either a collision or a junction capacity assessment for the level of increase predicted and the time frame over which it would apply.
A47/ A1074 Longwater Junction	No traffic assigned to this junction	The use of this junction by workforce with home addresses in Norwich should be quantified.

A47/ B1108 Colney Junction	Traffic assigned to the B1108 (west) from its A47 junction.	Unlikely to require either a collision or a junction capacity assessment for the level of increase predicted and the time frame over which it would apply.
A11/ Station Lane, Hethersett	Traffic assigned to Station Lane from its junction with A11	Unlikely to require either a collision or a junction capacity assessment for the level of increase predicted and the time frame over which it would apply.
A11 to the south-west of Thickthorn junction	Direct access from A11 not acceptable to Highways England.	Direct access from A11 no longer proposed. No action required.
A11/ A47 Thickthorn Junction	Traffic assigned to A11 and B1172 from this junction	Unlikely to require either a collision or a junction capacity assessment for the level of increase predicted and the time frame over which it would apply.
A47/ A140 Harford Junction	Traffic assigned to A140 north and south of this junction.	Unlikely to require either a collision or a junction capacity assessment for the level of increase predicted and the time frame over which it would apply.
A140/ B1113 Junction	Traffic assigned to A140 north of A47 as far as this junction: potential queue back to A47.	LinSig model appears to show this will not be a problem at the SRN. Confirm accuracy of LinSig model outputs with Norfolk County Council
A47/ A146 Trowse Junction	Traffic assigned to A146 south-east of this junction.	Unlikely to require either a collision or a junction capacity assessment for the level of increase predicted and the time frame over which it would apply.
A47/ A1270 Postwick Junction	Traffic assigned to A1270 north of this junction.	Unlikely to require either a collision or a junction capacity assessment for the level of increase predicted and the time frame over which it would apply.

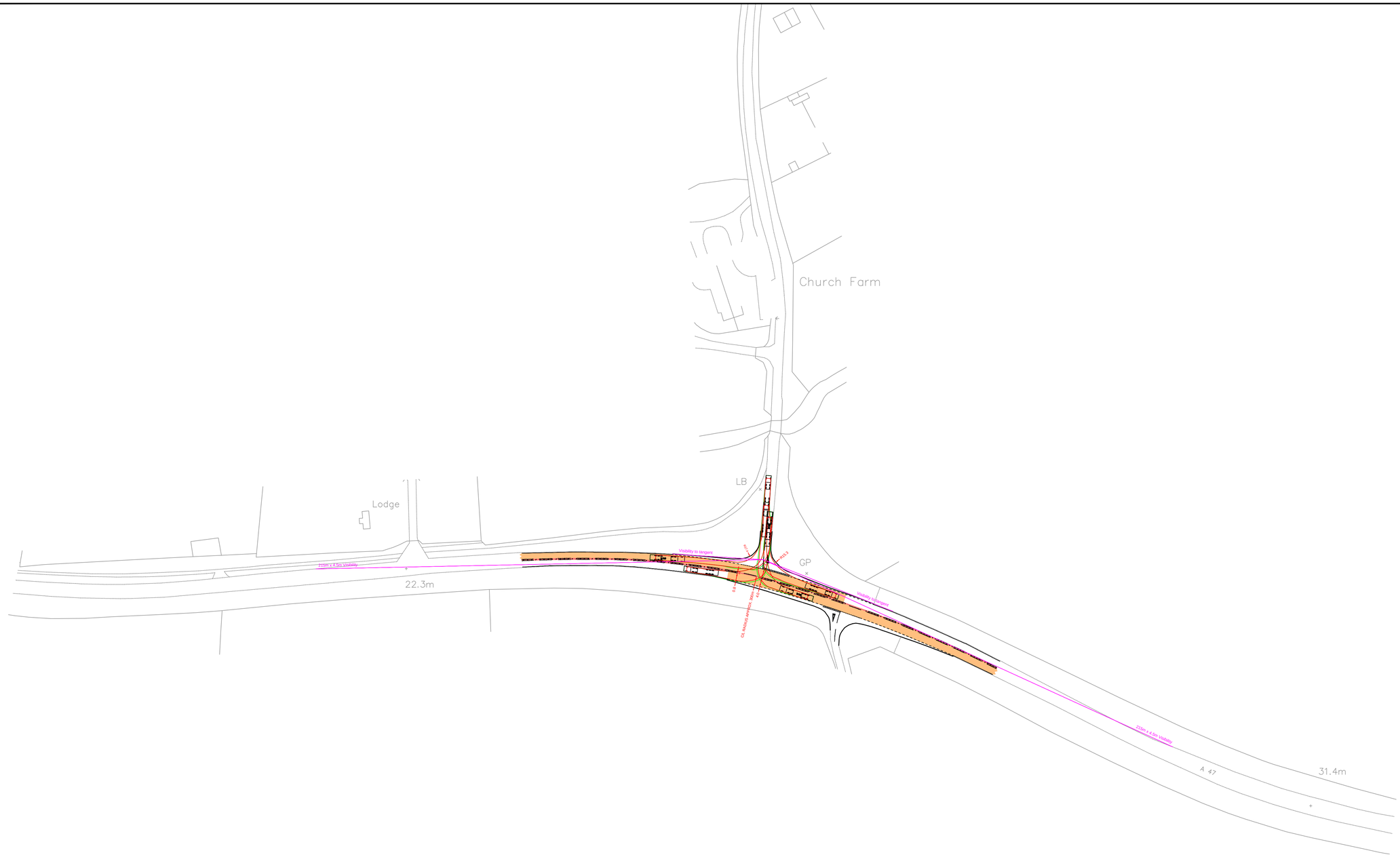
Conclusion

49. It is clear that the Transport & Traffic work supporting the EIA is at an early stage. AECOM welcome the opportunity to comment on it. Direct engagement between Dong Energy and their consultants with Highways England would be worthwhile at this stage, in order to ensure that all issues of relevance to the impact of these proposals on the SRN are addressed in a clear, accurate and comprehensive way.

50. This Briefing Note gives an initial response to the PEIR and provides some pointers as to the areas of work likely to be of interest to Highways England and to the further analysis that will be required to address them.

51. AECOM look forward to working collaboratively with Highways England, Dong Energy and RPS to reach a position where we can advise Highways England that all relevant impacts have been assessed and, if necessary, mitigated in an appropriate way.

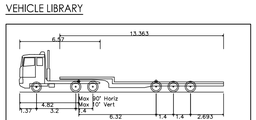
Appendix B - Geometric Swept Path Analysis



GENERAL NOTES:

1. THE DRAWING IS BASED ON ORDNANCE SURVEY DIGITAL MAPPING.
2. PRELIMINARY DESIGN BASED ON ESTIMATED 100kph DESIGN SPEED.
3. ANY EXCAVATION CLOSE TO TREES/HEDGES TO BE CARRIED OUT IN ACCORDANCE WITH NJUG GUIDELINES.
4. SERVICES ARE TO BE PROTECTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE RELEVANT STATUTORY AUTHORITIES.
5. TO BE READ IN CONJUNCTION WITH ALL OTHER LAYOUT AND DETAIL DRAWINGS.
6. ROAD WIDENING TO FOLLOW EXISTING CROSS-FALL LEVELS.
7. ACCESS FOR PEDESTRIANS AND CYCLISTS IS TO BE MAINTAINED AT ALL TIMES. ACCESSES TO PROPERTIES ARE TO BE MAINTAINED AND WORKS PROGRAMMED IN CONSULTATION WITH PROPERTY OWNERS.
8. ROAD MARKINGS AND ROAD SIGNS ARE TO BE IN ACCORDANCE WITH THE SI DOCUMENT "TRAFFIC SIGNS REGULATIONS AND GENERAL DIRECTIONS, 2016".
9. ALL MEASUREMENTS IN METRES UNLESS OTHERWISE STATED.

VEHICLE LIBRARY



Low Loader	
Overall Length	16.633m
Overall Width	2.500m
Overall Body Height	3.396m
Min Body Ground Clearance	0.320m
Max Track Width	2.200m
Lock to Lock Time	6.00s
Kerb to Kerb Turning Radius	6.790m

REV	DATE	AMENDMENT DETAILS	DRAWN	APPROVED

PROJECT: HORNSEA 3 OFF-SHORE WIND FARM	DATE: 26.10.18	DRAWING STATUS: INFORMATION	
	SCALE(S): 1:1000	DESIGNED: AF	DRAWN: AF
		CHECKED: MDA	APPROVED: PZ
DRAWING TITLE: TAVERHAM ROAD LOW LOADER TRACKING	JOB No: 1554		
CLIENT: ORSTED	DRAWING No: 03/301	REVISION: -	

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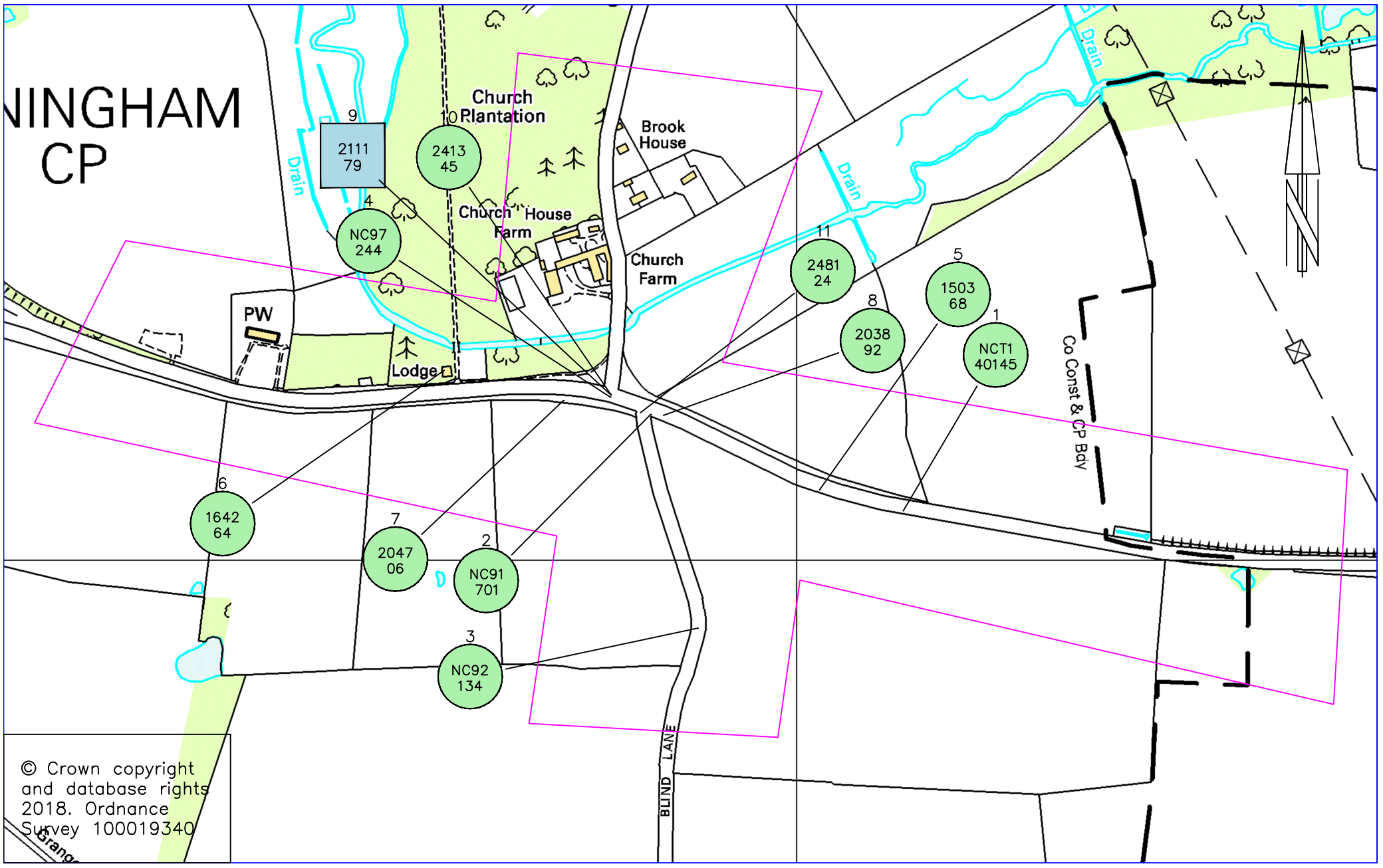
DO NOT SCALE ORIGINAL SHEET SIZE - A1 Landscape

Appendix C - Norfolk County Council Accident Data

A47/Taverham Road Junction Collision History – September 2013 to August 2018



Reference Number	1	2	3	4	5	6	7	8	9	10	11
	NCT1 40145	NC91 701	NC92 134	NC97 244	1503 68	1642 64	2047 06	2038 92	2111 79	2413 45	2481 24
Date / Day	Sa 16	Mo 29	Fr 17	Fr 15	Sa 14	Mo 20	Th 04	Tu 04	We 26	We 08	Tu 21
Month	Aug	Jun	Jul	Jan	Jan	Feb	May	Jul	Jul	Nov	Nov
Year	2014	2015	2015	2016	2017	2017	2017	2017	2017	2017	2017
Time	2009	1030	0730	1452	2330	1216	1030	1635	1733	0925	1116
Severity	Sl	Sl	Sl	Sl	Sl	Sl	Sl	Sl	Se	Sl	Sl
Dark / Lit											
Weather Conditions											
Road Surface											
Special Conditions											
Carriageway Hazards											
Vehicle Manoeuvres											
Vehicle 1	5 e										
Vehicle 2	6 t										
Vehicle 3	7 c										
Vehicle 4	8										
Casualty /age	42	36 49	34 38	19	21 25 36	82	34 26	34	55	33	66
Failed to Give–Way											
Signal Ignored											
Loss of Control											
Hit Object IN C'way											
Hit Object OFF C'way											
Vehicle Left C'way	N	N			N	O					N
Breath Test											
Contributory Factors 1/2	V1 ** 410	V1 ** 410	V1 ** 406	V1 ** 405	V1 ** 501	V1 ** 410	V1 ** 308	V1 ** 405	V1 ** 405	V1 ** 405	V2 * 406
	V1 ** 509	V1 ** 102	V2 ** 406		V1 ** 502	V1 * 509	V1 ** 405	V1 ** 405	V1 ** 405	V1 * 605	V2 * 403
3/4					V1 * 103	V1 * 510	V1 ** 406			V1 * 710	V1 * 406
5/6					V1 * 707		V1 ** 602				
* possible, ** very likely											
School No./Ref.											
User fields: 1											
2											
3											
4											

Full Details Report Summary -

Accidents Found Date Range: 16/08/2014 - 21/11/2017
Grid Coordinate Range: 611616, 310926 - 612116, 311207
Accident Date BETWEEN '01-Sep-2013' AND '31-Aug-2018'

Accident Severity

	2014	2015	2016	2017	Total
Serious	**0**	**0**	**0**	**1**	**1**
Slight	**1**	**2**	**1**	**6**	**10**
Total	**1**	**2**	**1**	**7**	**11**

Casualty Severity

	2014	2015	2016	2017	Total
Serious	**0**	**0**	**0**	**1**	**1**
Slight	**1**	**4**	**1**	**9**	**15**
Total	**1**	**4**	**1**	**10**	**16**

Casualty KSI

	2014	2015	2016	2017	Total
Adult KSI	**0**	**0**	**0**	**1**	**1**
Slight	**1**	**4**	**1**	**9**	**15**
Total	**1**	**4**	**1**	**10**	**16**

1.3 Accident Reference:NCT140145 Slight HONINGHAM A47 300MTRS EAST OF BLIND LANE Accident 1 of 11

1.7 Date & 1.9 Time.....Saturday 16/08/2014 20:09
1.11 Grid co-ordinates.....612116/311054
1.10 Local Authority.....Broadland
1.12/1.13 1st road identity..A47
1.18/1.19 2nd road identity..
1.22 Weather.....Fine
1.21 Light conditions.....Daylight
1.20a Crossing(human).....No Human control within 50m
1.20b Crossing(physical).....No crossing facility within 5
1.15 Speed limit.....60 Mph
1.14 Road type.....Single c'way
1.16 Junction detail.....Not at or within 20m of junction
1.17 Junction control.....
1.24 Special conditions...None
1.25 Carriageway hazards..None
1.5 Number of vehicles...1
1.6 Number of casualties.1
1.23 Surface.....Dry

Contributory Factors	Participant	Confidence	Did a police officer attend?
Loss of control (Driver/Rider - Error)	Vehicle 001	Very likely	Yes
Distraction in vehicle (Driver/Rider - Impairment)	Vehicle 001	Very likely	

Accident Description
V1 TRAVELLING TOWARDS DEREHAM ON THE A47 WHEN LOST CONTROL LEFT ROAD TO NEARSIDE AND ENTERED DITCH

1 Vehicle

2.4 Veh ref no.....1
2.17 Other vehicle.....0
2.5 Vehicle class.....Car
2.10 Junction location...Not at junction
2.9 Restricted location.On main carriageway
2.8 Movement from/to....East North west
2.7 Manoeuvres.....Going ahead right hand bend
2.11 Skidding.....Yes & Overturned
2.13 Left c'way.....Left c'way near-side
2.6 Towing.....No
2.28 Foreign vehicle.....Not foreign
2.16 First impact.....Front
2.12 Hit object in c'way..None
2.14 Hit object off c'way.None
2.18 Parts damaged..... / /
2.21 Driver gender.....Female
2.22 Driver age.....42
2.24 Hit and Run.....No
2.23 Breath test.....Negative
2.29 Journey purpose.....Other

1 Casualty

3.5 Cas ref no.....1
3.6 Casualty class.....Driver or Rider
3.7 Gender.....Female
3.8 Age.....42
3.9 Severity.....Slight
3.4 Vehicle no.....1
3.12 Ped Direction.....Not a pedestrian
3.15 Car passenger.....No
3.16 PSV passenger.....No
3.14 Seat belt usage.....Worn but not independently confirmed
3.17 School pupil.....Other
(3.19 School .....)
3.10 Pedestrian location..Not a pedestrian
3.11 Pedestrian movement..Not a pedestrian
3.19 Roadworker injured...No

1.3 Accident Reference:NC91701 Slight HONINGHAM, A47 J/W BLIND LANE Accident 2 of 11

1.7 Date & 1.9 Time.....Monday 29/06/2015 10:30
1.11 Grid co-ordinates.....611841/311159
1.10 Local Authority.....Broadland
1.12/1.13 1st road identity..A47
1.18/1.19 2nd road identity..C174
1.22 Weather.....Fine
1.21 Light conditions.....Daylight
1.20a Crossing(human).....No Human control within 50m
1.20b Crossing(physical).....No crossing facility within 5
1.15 Speed limit.....60 Mph
1.14 Road type.....Single c'way
1.16 Junction detail.....T or Staggered junction
1.17 Junction control.....Give way sign or uncontrolled
1.24 Special conditions...None
1.25 Carriageway hazards..None
1.5 Number of vehicles...1
1.6 Number of casualties.2
1.23 Surface.....Dry

Contributory Factors	Participant	Confidence	Did a police officer attend?
Loss of control (Driver/Rider - Error)	Vehicle 001	Very likely	No - reported over the counter
Deposit on road e.g. oil, mud, chippings (Road Environment Contrib)	Vehicle 001	Very likely	

Accident Description
V1 ON A47 TOWARDS DEREHAM TURNED LEFT AT BLIND LANE MISJUDGED JUNCTION LOST CONTROL LEFT ROAD TO NEARSIDE NAD HIT ROAD SIGN

1 Vehicle

2.4 Veh ref no.....1
2.17 Other vehicle.....0
2.5 Vehicle class.....Car
2.10 Junction location...Leaving main road
2.9 Restricted location.On main carriageway
2.8 Movement from/to....South east South
2.7 Manoeuvres.....Turning left
2.11 Skidding.....Yes
2.13 Left c'way.....Left c'way near-side
2.6 Towing.....No
2.28 Foreign vehicle.....Not foreign
2.16 First impact.....Front
2.12 Hit object in c'way..None
2.14 Hit object off c'way.Road sign or signal
2.18 Parts damaged..... / /
2.21 Driver gender.....Female
2.22 Driver age.....36
2.24 Hit and Run.....No
2.23 Breath test.....Not requested
2.29 Journey purpose.....Journey as part of work

2 Casualties

3.5 Cas ref no.....1
3.6 Casualty class.....Driver or Rider
3.7 Gender.....Female
3.8 Age.....36
3.9 Severity.....Slight
3.4 Vehicle no.....1
3.12 Ped Direction.....Not a pedestrian
3.15 Car passenger.....No
3.16 PSV passenger.....No
3.14 Seat belt usage.....Worn but not independently confirmed
3.17 School pupil.....Other
(3.19 School .....)
3.10 Pedestrian location..Not a pedestrian
3.11 Pedestrian movement..Not a pedestrian
3.19 Roadworker injured...No

3.5 Cas ref no.....2
3.6 Casualty class.....Passenger
3.7 Gender.....Female
3.8 Age.....49
3.9 Severity.....Slight
3.4 Vehicle no.....1
3.12 Ped Direction.....Not a pedestrian
3.15 Car passenger.....Front
3.16 PSV passenger.....No
3.14 Seat belt usage.....Worn but not independently confirmed
3.17 School pupil.....Other
(3.19 School .....)
3.10 Pedestrian location..Not a pedestrian
3.11 Pedestrian movement..Not a pedestrian
3.19 Roadworker injured...No

1.3 Accident Reference:NC92134 Slight HONINGHAM, BLIND LANE APPROX 240MTRS SOUTH OF THE A47 Accident 3 of 11

1.7 Date & 1.9 Time.....Friday 17/07/2015 07:30
1.11 Grid co-ordinates.....611892/310926
1.10 Local Authority.....Broadland
1.12/1.13 1st road identity..C174
1.18/1.19 2nd road identity..
1.22 Weather.....Fine
1.21 Light conditions.....Daylight
1.20a Crossing(human).....No Human control within 50m
1.20b Crossing(physical).....No crossing facility within 5
1.15 Speed limit.....60 Mph
1.14 Road type.....Single c'way
1.16 Junction detail.....Not at or within 20m of junction
1.17 Junction control.....
1.24 Special conditions...Mud
1.25 Carriageway hazards..None
1.5 Number of vehicles...2
1.6 Number of casualties.2
1.23 Surface.....Wet

Contributory Factors	Participant	Confidence	Did a police officer attend?
Failed to judge other person's path/speed (Driver/Rider - Error)	Vehicle 001	Very likely	Yes
Failed to judge other person's path/speed (Driver/Rider - Error)	Vehicle 002	Very likely	

Accident Description
V1 ON BLIND LANE HEADED NORTH TOWARDS A47, V2 IN OPPOSITE DIRECTION. VEHICLES MET ON BEND WHEN OFFSIDE OF EACH VEHICLE HIT

2 Vehicles

2.4 Veh ref no.....1
2.17 Other vehicle.....0
2.5 Vehicle class.....Car
2.10 Junction location...Not at junction
2.9 Restricted location.On main carriageway
2.8 Movement from/to....South west North
2.7 Manoeuvres.....Going ahead left hand bend
2.11 Skidding.....No
2.13 Left c'way.....Did not leave c'way
2.6 Towing.....No
2.28 Foreign vehicle.....Not foreign
2.16 First impact.....Offside
2.12 Hit object in c'way..None
2.14 Hit object off c'way.None
2.18 Parts damaged..... / /
2.21 Driver gender.....Male
2.22 Driver age.....34
2.24 Hit and Run.....No
2.23 Breath test.....Negative
2.29 Journey purpose.....Journey as part of work

2.4 Veh ref no.....2
2.17 Other vehicle.....0
2.5 Vehicle class.....Van/Goods < 3.5t
2.10 Junction location...Not at junction
2.9 Restricted location.On main carriageway
2.8 Movement from/to....North South west
2.7 Manoeuvres.....Going ahead right hand bend
2.11 Skidding.....No
2.13 Left c'way.....Did not leave c'way
2.6 Towing.....No
2.28 Foreign vehicle.....Not foreign
2.16 First impact.....Offside
2.12 Hit object in c'way..None
2.14 Hit object off c'way.None
2.18 Parts damaged..... / /
2.21 Driver gender.....Male
2.22 Driver age.....51
2.24 Hit and Run.....No
2.23 Breath test.....Negative
2.29 Journey purpose.....Journey as part of work

2 Casualties

3.5 Cas ref no.....1
3.6 Casualty class.....Driver or Rider
3.7 Gender.....Male
3.8 Age.....34
3.9 Severity.....Slight
3.4 Vehicle no.....1
3.12 Ped Direction.....Not a pedestrian
3.15 Car passenger.....No
3.16 PSV passenger.....No
3.14 Seat belt usage.....Unknown
3.13 School pupil.....Other
(3.19 School .....)
3.10 Pedestrian location..Not a pedestrian
3.11 Pedestrian movement..Not a pedestrian
3.19 Roadworker injured...No

3.5 Cas ref no.....2
3.6 Casualty class.....Passenger
3.7 Gender.....Male
3.8 Age.....38
3.9 Severity.....Slight
3.4 Vehicle no.....2
3.12 Ped Direction.....Not a pedestrian
3.15 Car passenger.....No
3.16 PSV passenger.....No
3.14 Seat belt usage.....Unknown
3.13 School pupil.....Other
(3.19 School .....)
3.10 Pedestrian location..Not a pedestrian
3.11 Pedestrian movement..Not a pedestrian
3.19 Roadworker injured...No

1.3 Accident Reference:NC97244 Slight HONINGHAM, A47 J/W TAVERHAM ROAD Accident 4 of 11

1.7 Date & 1.9 Time.....Friday 15/01/2016 14:52
1.11 Grid co-ordinates.....611797/311178
1.10 Local Authority.....Broadland
1.12/1.13 1st road identity..A47
1.18/1.19 2nd road identity..C174
1.22 Weather.....Rain
1.21 Light conditions.....Daylight
1.20a Crossing(human).....No Human control within 50m
1.20b Crossing(physical).....No crossing facility within 5
1.15 Speed limit.....60 Mph
1.14 Road type.....Single c'way
1.16 Junction detail.....T or Staggered junction
1.17 Junction control.....Give way sign or uncontrolled
1.24 Special conditions...None
1.25 Carriageway hazards..None
1.5 Number of vehicles...2
1.6 Number of casualties.1
1.23 Surface.....Wet

Contributory Factors	Participant	Confidence	Did a police officer attend?
Failed to look properly (Driver/Rider - Error)	Vehicle 001	Very likely	Yes

Accident Description
V2 ON A47 HEADED WEST WHEN AT JUNCTION WITH TAVERHAM ROAD STOPPED TO TURN RIGHT, V1 TRAVELLING BEHIND FAILED TO SEE V2 STOPPED AND HIT REAR OF V2

2 Vehicles

2.4 Veh ref no.....1
2.17 Other vehicle.....0
2.5 Vehicle class.....Car
2.10 Junction location...Approaching or parked on approach
2.9 Restricted location.On main carriageway
2.8 Movement from/to....South east West
2.7 Manoeuvres.....Going ahead other
2.11 Skidding.....No
2.13 Left c'way.....Did not leave c'way
2.6 Towing.....No
2.28 Foreign vehicle.....Not foreign
2.16 First impact.....Front
2.12 Hit object in c'way..None
2.14 Hit object off c'way.None
2.18 Parts damaged..... / /
2.21 Driver gender.....Female
2.22 Driver age.....19
2.24 Hit and Run.....No
2.23 Breath test.....Negative
2.29 Journey purpose.....Other

2.4 Veh ref no.....2
2.17 Other vehicle.....0
2.5 Vehicle class.....Car
2.10 Junction location...Mid junction
2.9 Restricted location.On main carriageway
2.8 Movement from/to....South east North
2.7 Manoeuvres.....Waiting to turn right
2.11 Skidding.....No
2.13 Left c'way.....Did not leave c'way
2.6 Towing.....No
2.28 Foreign vehicle.....Not foreign
2.16 First impact.....Back
2.12 Hit object in c'way..None
2.14 Hit object off c'way.None
2.18 Parts damaged..... / /
2.21 Driver gender.....Male
2.22 Driver age.....22
2.24 Hit and Run.....No
2.23 Breath test.....Negative
2.29 Journey purpose.....Other

1 Casualty

3.5 Cas ref no.....1
3.6 Casualty class.....Driver or Rider
3.7 Gender.....Female
3.8 Age.....19
3.9 Severity.....Slight
3.4 Vehicle no.....1
3.12 Ped Direction.....Not a pedestrian
3.15 Car passenger.....No
3.16 PSV passenger.....No
3.14 Seat belt usage.....Worn but not independently
3.17 Sch pupil.....Other
(3.19 School .....)
3.10 Pedestrian location..Not a pedestrian
3.11 Pedestrian movement..Not a pedestrian
3.19 Roadworker injured...No

1.3 Accident Reference:150368 Slight TRUNK ROAD A47 250 METRES EAST OF JUNCTION WITH BLIND LANE C174 Accident 5 of 11

1.7 Date & 1.9 Time.....Saturday 14/01/2017 23:30	1.15 Speed limit.....60 Mph
1.11 Grid co-ordinates.....612025/311077	1.14 Road type.....Single c'way
1.10 Local Authority.....Broadland	1.16 Junction detail.....Not at or within 20m of junction
1.12/1.13 1st road identity..A47	1.17 Junction control.....
1.18/1.19 2nd road identity..	1.24 Special conditions...None
1.22 Weather.....Snow	1.25 Carriageway hazards..None
1.21 Light conditions.....Dark/no lights	1.5 Number of vehicles...1
1.20a Crossing(human).....No Human control within 50m	1.6 Number of casualties.3
1.20b Crossing(physical).....No crossing facility within 5	1.23 Surface.....Wet

Contributory Factors	Participant	Confidence	Did a police officer attend?
Impaired by alcohol (Driver/Rider - Impairment)	Vehicle 001	Very likely	Yes
Impaired by drugs (Driver/Rider - Impairment)	Vehicle 001	Very likely	
Slippery road due to weather (Road Environment Contrib)	Vehicle 001	Possible	
Rain, sleet, snow or fog (Driver/Rider - Vision Affected)	Vehicle 001	Possible	

Accident Description

Apparently Veh1 was travelling west along the A47. The vehicle failed to negotiate a slight O/S bend and left the road to the N/S. Veh rolled over landing on the O/S. All occupants managed to get out. Driver provided a positive alcohol and drugs test.

1 Vehicle

2.4 Veh ref no.....1	
2.17 Other vehicle.....0	2.16 First impact.....Did not impact
2.5 Vehicle class.....Car	2.12 Hit object in c'way..None
2.10 Junction location...Not at junction	2.14 Hit object off c'way.None
2.9 Restricted location.On main carriageway	2.18 Parts damaged..... / /
2.8 Movement from/to....East West	2.21 Driver gender.....Female
2.7 Manoeuvres.....Going ahead right hand bend	2.22 Driver age.....21
2.11 Skidding.....Yes & Overturned	
2.13 Left c'way.....Left c'way near-side	2.24 Hit and Run.....No
2.6 Towing.....No	2.23 Breath test.....Positive
2.28 Foreign vehicle.....Not foreign	2.29 Journey purpose.....Unknown

3 Casualties

3.5 Cas ref no.....1	3.15 Car passenger.....No
3.6 Casualty class.....Driver or Rider	3.16 PSV passenger.....No
3.7 Gender.....Female	3.14 Seat belt usage.....Not applicable
3.8 Age.....21	3.13 School pupil.....Other
	(3.19 School .....)
3.9 Severity.....Slight	3.10 Pedestrian location..Not a pedestrian
3.4 Vehicle no.....1	3.11 Pedestrian movement..Not a pedestrian
3.12 Ped Direction.....Not a pedestrian	3.19 Roadworker injured...No

3.5 Cas ref no.....2	3.15 Car passenger.....Front
3.6 Casualty class.....Passenger	3.16 PSV passenger.....No
3.7 Gender.....Female	3.14 Seat belt usage.....Not applicable
3.8 Age.....25	3.13 School pupil.....Other
	(3.19 School .....)
3.9 Severity.....Slight	3.10 Pedestrian location..Not a pedestrian
3.4 Vehicle no.....1	3.11 Pedestrian movement..Not a pedestrian
3.12 Ped Direction.....Not a pedestrian	3.19 Roadworker injured...No

3.5 Cas ref no.....3	3.15 Car passenger.....Rear
3.6 Casualty class.....Passenger	3.16 PSV passenger.....No
3.7 Gender.....Male	3.14 Seat belt usage.....Not applicable
3.8 Age.....36	3.13 School pupil.....Other
	(3.19 School .....)
3.9 Severity.....Slight	3.10 Pedestrian location..Not a pedestrian
3.4 Vehicle no.....1	3.11 Pedestrian movement..Not a pedestrian
3.12 Ped Direction.....Not a pedestrian	3.19 Roadworker injured...No

1.3 Accident Reference:164264 Slight NORWICH ROAD A47 Accident 6 of 11

1.7 Date & 1.9 Time.....Monday 20/02/2017 12:16
1.11 Grid co-ordinates.....611616/311207
1.10 Local Authority.....Broadland
1.12/1.13 1st road identity..A47
1.18/1.19 2nd road identity..
1.22 Weather.....Fine
1.21 Light conditions.....Daylight
1.20a Crossing(human).....No Human control within 50m
1.20b Crossing(physical).....No crossing facility within 5
1.15 Speed limit.....60 Mph
1.14 Road type.....Single c'way
1.16 Junction detail.....Not at or within 20m of junction
1.17 Junction control.....
1.24 Special conditions...None
1.25 Carriageway hazards..None
1.5 Number of vehicles...1
1.6 Number of casualties.1
1.23 Surface.....Dry

Contributory Factors	Participant	Confidence	Did a police officer attend?
Loss of control (Driver/Rider - Error)	Vehicle 001	Very likely	Yes
Distraction in vehicle (Driver/Rider - Impairment)	Vehicle 001	Possible	
Distraction outside vehicle (Driver/Rider - Impairment)	Vehicle 001	Possible	

Accident Description
SINGLE VEH TRAVELLING ALONG THE A47 TOWARDS DEREHAM - DRIVER LOST CONTROL OF VEHICLE, REASON NO KNOWN, VEH HAS STARTED TO WEAVE SIDE TO SIDE AND THEN CROSSED THE ONCOMING LANE FLIPPING AND HAS COME TO REST IN THE HEDGE ROW OFF THE NORWICH BOUND LANE

1 Vehicle

2.4 Veh ref no.....1
2.17 Other vehicle.....0
2.5 Vehicle class.....Car
2.10 Junction location...Not at junction
2.9 Restricted location.On main carriageway
2.8 Movement from/to....South east North west
2.7 Manoeuvres.....Going ahead other
2.11 Skidding.....Yes & Overturned
2.13 Left c'way.....Left c'way Offside
2.6 Towing.....No
2.28 Foreign vehicle.....Not foreign
2.16 First impact.....Front
2.12 Hit object in c'way..None
2.14 Hit object off c'way.None
2.18 Parts damaged..... / /
2.21 Driver gender.....Male
2.22 Driver age.....82
2.24 Hit and Run.....No
2.23 Breath test.....Negative
2.29 Journey purpose.....Unknown

1 Casualty

3.5 Cas ref no.....1
3.6 Casualty class.....Driver or Rider
3.7 Gender.....Male
3.8 Age.....82
3.9 Severity.....Slight
3.4 Vehicle no.....1
3.12 Ped Direction.....Not a pedestrian
3.15 Car passenger.....No
3.16 PSV passenger.....No
3.14 Seat belt usage.....Not applicable
3.13 School pupil.....Other
(3.19 School .....)
3.10 Pedestrian location..Not a pedestrian
3.11 Pedestrian movement..Not a pedestrian
3.19 Roadworker injured...No

1.3 Accident Reference:204706 Slight A47 AT JN WITH TAVERHAM ROAD Accident 7 of 11

1.7 Date & 1.9 Time.....Thursday 04/05/2017 10:30
1.11 Grid co-ordinates.....611746/311174
1.10 Local Authority.....Broadland
1.12/1.13 1st road identity..U
1.18/1.19 2nd road identity..U
1.22 Weather.....Fine
1.21 Light conditions.....Daylight
1.20a Crossing(human).....No Human control within 50m
1.20b Crossing(physical).....No crossing facility within 5
1.15 Speed limit.....60 Mph
1.14 Road type.....Single c'way
1.16 Junction detail.....T or Staggered junction
1.17 Junction control.....Give way sign or uncontrolled
1.24 Special conditions...None
1.25 Carriageway hazards..None
1.5 Number of vehicles...2
1.6 Number of casualties.2
1.23 Surface.....Dry

Contributory Factors	Participant	Confidence	Did a police officer attend?
Following too close (Driver/Rider - Injudicious)	Vehicle 001	Very likely	
Failed to look properly (Driver/Rider - Error)	Vehicle 001	Very likely	
Failed to judge other person's path/speed (Driver/Rider - Error)	Vehicle 001	Very likely	Yes
Careless/Reckless (Driver/Rider - Behaviour)	Vehicle 001	Very likely	

Accident Description
V2 was waiting to turn right in carriageway. V1 did not see this and has collided into V2.

2 Vehicles

2.4 Veh ref no.....1
2.17 Other vehicle.....0
2.5 Vehicle class.....Van/Goods < 3.5t
2.10 Junction location...Approaching or parked on approach
2.9 Restricted location.On main carriageway
2.8 Movement from/to....East West
2.7 Manoeuvres.....Going ahead other
2.11 Skidding.....No
2.13 Left c'way.....Did not leave c'way
2.6 Towing.....No
2.28 Foreign vehicle.....Not foreign
2.16 First impact.....Nearside
2.12 Hit object in c'way..None
2.14 Hit object off c'way.None
2.18 Parts damaged..... / /
2.21 Driver gender.....Male
2.22 Driver age.....34
2.24 Hit and Run.....No
2.23 Breath test.....Negative
2.29 Journey purpose.....Journey as part of work

2.4 Veh ref no.....2
2.17 Other vehicle.....0
2.5 Vehicle class.....Car
2.10 Junction location...Approaching or parked on approach
2.9 Restricted location.On main carriageway
2.8 Movement from/to....East West
2.7 Manoeuvres.....Stopping
2.11 Skidding.....No
2.13 Left c'way.....Did not leave c'way
2.6 Towing.....No
2.28 Foreign vehicle.....Not foreign
2.16 First impact.....Offside
2.12 Hit object in c'way..None
2.14 Hit object off c'way.None
2.18 Parts damaged..... / /
2.21 Driver gender.....Female
2.22 Driver age.....26
2.24 Hit and Run.....No
2.23 Breath test.....Negative
2.29 Journey purpose.....Other

2 Casualties

3.5 Cas ref no.....1
3.6 Casualty class.....Driver or Rider
3.7 Gender.....Male
3.8 Age.....34
3.9 Severity.....Slight
3.4 Vehicle no.....1
3.12 Ped Direction.....Not a pedestrian
3.15 Car passenger.....No
3.16 PSV passenger.....No
3.14 Seat belt usage.....Unknown
3.13 School pupil.....Other
(3.19 School .....)
3.10 Pedestrian location..Not a pedestrian
3.11 Pedestrian movement..Not a pedestrian
3.19 Roadworker injured...No

3.5 Cas ref no.....2
3.6 Casualty class.....Driver or Rider
3.7 Gender.....Female
3.8 Age.....26
3.9 Severity.....Slight
3.4 Vehicle no.....2
3.12 Ped Direction.....Not a pedestrian
3.15 Car passenger.....No
3.16 PSV passenger.....No
3.14 Seat belt usage.....Unknown
3.13 School pupil.....Other
(3.19 School .....)
3.10 Pedestrian location..Not a pedestrian
3.11 Pedestrian movement..Not a pedestrian
3.19 Roadworker injured...No

1.3 Accident Reference:203892 Slight HONNINGHAM A47 NEAR JN WITH BLIND LANE Accident 8 of 11

1.7 Date & 1.9 Time.....Tuesday 04/07/2017 16:35
1.11 Grid co-ordinates.....611855/311158
1.10 Local Authority.....Broadland
1.12/1.13 1st road identity..A47
1.18/1.19 2nd road identity..U
1.22 Weather.....Fine
1.21 Light conditions.....Daylight
1.20a Crossing(human).....No Human control within 50m
1.20b Crossing(physical).....No crossing facility within 5
1.15 Speed limit.....60 Mph
1.14 Road type.....Single c'way
1.16 Junction detail.....T or Staggered junction
1.17 Junction control.....Give way sign or uncontrolled
1.24 Special conditions...None
1.25 Carriageway hazards..None
1.5 Number of vehicles...3
1.6 Number of casualties.1
1.23 Surface.....Dry

Contributory Factors	Participant	Confidence	Did a police officer attend?
Failed to look properly (Driver/Rider - Error)	Vehicle 001	Very likely	Yes
Failed to look properly (Driver/Rider - Error)	Vehicle 001	Very likely	

Accident Description
ALLEGEDLY THERE WAS A QUEUE OF TRAFFIC WITH A VEHICLE WAITING TO TURN RIGHT. V1 NOT CONCENTRATING & DIDN'T BRAKE & HIT V2. V2 THEN HIT V3.

3 Vehicles

2.4 Veh ref no.....1
2.17 Other vehicle.....0
2.5 Vehicle class.....Goods unknown weight
2.10 Junction location...Approaching or parked on approach
2.9 Restricted location.On main carriageway
2.8 Movement from/to....East West
2.7 Manoeuvres.....Going ahead other
2.11 Skidding.....No
2.13 Left c'way.....Did not leave c'way
2.6 Towing.....No
2.28 Foreign vehicle.....Not foreign
2.16 First impact.....Front
2.12 Hit object in c'way..None
2.14 Hit object off c'way.None
2.18 Parts damaged..... / /
2.21 Driver gender.....Male
2.22 Driver age.....21
2.24 Hit and Run.....No
2.23 Breath test.....Negative
2.29 Journey purpose.....Other

2.4 Veh ref no.....2
2.17 Other vehicle.....0
2.5 Vehicle class.....Car
2.10 Junction location...Approaching or parked on approach
2.9 Restricted location.On main carriageway
2.8 Movement from/to....East West
2.7 Manoeuvres.....Stopping
2.11 Skidding.....No
2.13 Left c'way.....Did not leave c'way
2.6 Towing.....No
2.28 Foreign vehicle.....Not foreign
2.16 First impact.....Back
2.12 Hit object in c'way..None
2.14 Hit object off c'way.None
2.18 Parts damaged..... / /
2.21 Driver gender.....Male
2.22 Driver age.....34
2.24 Hit and Run.....No
2.23 Breath test.....Negative
2.29 Journey purpose.....Commuting to/from work

2.4 Veh ref no.....3
2.17 Other vehicle.....0
2.5 Vehicle class.....Car
2.10 Junction location...Approaching or parked on approach
2.9 Restricted location.On main carriageway
2.8 Movement from/to....East West
2.7 Manoeuvres.....Stopping
2.11 Skidding.....No
2.13 Left c'way.....Did not leave c'way
2.6 Towing.....No
2.28 Foreign vehicle.....Not foreign
2.16 First impact.....Back
2.12 Hit object in c'way..None
2.14 Hit object off c'way.None
2.18 Parts damaged..... / /
2.21 Driver gender.....Female
2.22 Driver age.....51
2.24 Hit and Run.....No
2.23 Breath test.....Negative
2.29 Journey purpose.....Commuting to/from work

1 Casualty

3.5 Cas ref no.....1
3.6 Casualty class.....Driver or Rider
3.7 Gender.....Male
3.8 Age.....34
3.9 Severity.....Slight
3.4 Vehicle no.....2
3.12 Ped Direction.....Not a pedestrian
3.15 Car passenger.....No
3.16 PSV passenger.....No
3.14 Seat belt usage.....Unknown
3.13 School pupil.....Other
(3.19 School .....)
3.10 Pedestrian location..Not a pedestrian
3.11 Pedestrian movement..Not a pedestrian
3.19 Roadworker injured...No

1.3 Accident Reference:211179 Serious BLIND LANE A47 AT JN WITH BLIND LANE C174 Accident 9 of 11

1.7 Date & 1.9 Time.....Wednesday 26/07/2017 17:33
1.11 Grid co-ordinates.....611797/311181
1.10 Local Authority.....Broadland
1.12/1.13 1st road identity..A47
1.18/1.19 2nd road identity..C174
1.22 Weather.....Fine
1.21 Light conditions.....Daylight
1.20a Crossing(human).....No Human control within 50m
1.20b Crossing(physical).....No crossing facility within 5
1.15 Speed limit.....60 Mph
1.14 Road type.....Single c'way
1.16 Junction detail.....T or Staggered junction
1.17 Junction control.....Give way sign or uncontrolled
1.24 Special conditions...None
1.25 Carriageway hazards..None
1.5 Number of vehicles...2
1.6 Number of casualties.1
1.23 Surface.....Dry

Contributory Factors	Participant	Confidence	Did a police officer attend?
Failed to look properly (Driver/Rider - Error)	Vehicle 001	Very likely	Yes

Accident Description
V1 and V2 were travelling in the same direction. V2 stopped for a vehicle turning right, V1 didn't stop in time.

2 Vehicles

2.4 Veh ref no.....1
2.17 Other vehicle.....0
2.5 Vehicle class.....Car
2.10 Junction location...Cleared junction or parked at junc
2.9 Restricted location.On main carriageway
2.8 Movement from/to....East West
2.7 Manoeuvres.....Going ahead other
2.11 Skidding.....No
2.13 Left c'way.....Did not leave c'way
2.6 Towing.....No
2.28 Foreign vehicle.....Not foreign
2.16 First impact.....Front
2.12 Hit object in c'way..None
2.14 Hit object off c'way.None
2.18 Parts damaged..... / /
2.21 Driver gender.....Male
2.22 Driver age.....55
2.24 Hit and Run.....No
2.23 Breath test.....Negative
2.29 Journey purpose.....Other

2.4 Veh ref no.....2
2.17 Other vehicle.....0
2.5 Vehicle class.....Car
2.10 Junction location...Cleared junction or parked at junc
2.9 Restricted location.On main carriageway
2.8 Movement from/to....East West
2.7 Manoeuvres.....Stopping
2.11 Skidding.....No
2.13 Left c'way.....Did not leave c'way
2.6 Towing.....No
2.28 Foreign vehicle.....Not foreign
2.16 First impact.....Back
2.12 Hit object in c'way..None
2.14 Hit object off c'way.None
2.18 Parts damaged..... / /
2.21 Driver gender.....Male
2.22 Driver age.....69
2.24 Hit and Run.....No
2.23 Breath test.....Negative
2.29 Journey purpose.....Other

1 Casualty

3.5 Cas ref no.....1
3.6 Casualty class.....Passenger
3.7 Gender.....Female
3.8 Age.....55
3.9 Severity.....Serious
3.4 Vehicle no.....1
3.12 Ped Direction.....Not a pedestrian
3.15 Car passenger.....Front
3.16 PSV passenger.....No
3.14 Seat belt usage.....
3.13 School pupil.....Other
(3.19 School .....)
3.10 Pedestrian location..Not a pedestrian
3.11 Pedestrian movement..Not a pedestrian
3.19 Roadworker injured...No

1.3 Accident Reference:241345 Slight TRUNK ROAD A47 AT JN WITH TAVERHAM ROAD C174 Accident 10 of 11

1.7 Date & 1.9 Time.....Wednesday 08/11/2017 09:25
1.11 Grid co-ordinates.....611798/311180
1.10 Local Authority.....Broadland
1.12/1.13 1st road identity..A47
1.18/1.19 2nd road identity..C174
1.22 Weather.....Fine
1.21 Light conditions.....Daylight
1.20a Crossing(human).....No Human control within 50m
1.20b Crossing(physical).....No crossing facility within 5
1.15 Speed limit.....60 Mph
1.14 Road type.....Single c'way
1.16 Junction detail.....T or Staggered junction
1.17 Junction control.....Give way sign or uncontrolled
1.24 Special conditions...None
1.25 Carriageway hazards..None
1.5 Number of vehicles...2
1.6 Number of casualties.1
1.23 Surface.....Dry

Contributory Factors	Participant	Confidence	Did a police officer attend?
Failed to look properly (Driver/Rider - Error)	Vehicle 001	Very likely	Yes
Inexperienced or learner driver/rider (Driver/Rider - Behaviour)	Vehicle 001	Possible	
Vehicle blind spot (Driver/Rider - Vision Affected)	Vehicle 001	Possible	

Accident Description
V001 WAS AT THE JUNCTION OF TAVERHAM ROAD/A47 WAITING TO TURN RIGHT. A47 APPROACHING THE ABOVE ROUNDABOUT. V001 PULLED OUT INTO THE PATH OF V002 ADN COLLIDED.

2 Vehicles

2.4 Veh ref no.....1
2.17 Other vehicle.....0
2.5 Vehicle class.....Car
2.10 Junction location...Cleared junction or parked at junc
2.9 Restricted location.On main carriageway
2.8 Movement from/to....North West
2.7 Manoeuvres.....Turning right
2.11 Skidding.....No
2.13 Left c'way.....Did not leave c'way
2.6 Towing.....No
2.28 Foreign vehicle.....Not foreign
2.16 First impact.....Front
2.12 Hit object in c'way..None
2.14 Hit object off c'way.None
2.18 Parts damaged..... / /
2.21 Driver gender.....Male
2.22 Driver age.....18
2.24 Hit and Run.....No
2.23 Breath test.....Negative
2.29 Journey purpose.....Commuting to/from work

2.4 Veh ref no.....2
2.17 Other vehicle.....0
2.5 Vehicle class.....Car
2.10 Junction location...Cleared junction or parked at junc
2.9 Restricted location.On main carriageway
2.8 Movement from/to....East West
2.7 Manoeuvres.....Going ahead other
2.11 Skidding.....No
2.13 Left c'way.....Did not leave c'way
2.6 Towing.....No
2.28 Foreign vehicle.....Not foreign
2.16 First impact.....Front
2.12 Hit object in c'way..None
2.14 Hit object off c'way.None
2.18 Parts damaged..... / /
2.21 Driver gender.....Female
2.22 Driver age.....33
2.24 Hit and Run.....No
2.23 Breath test.....Negative
2.29 Journey purpose.....Taking pupil to/from school

1 Casualty

3.5 Cas ref no.....1
3.6 Casualty class.....Driver or Rider
3.7 Gender.....Female
3.8 Age.....33
3.9 Severity.....Slight
3.4 Vehicle no.....2
3.12 Ped Direction.....Not a pedestrian
3.15 Car passenger.....No
3.16 PSV passenger.....No
3.14 Seat belt usage.....
3.13 School pupil.....Other
(3.19 School .....)
3.10 Pedestrian location..Not a pedestrian
3.11 Pedestrian movement..Not a pedestrian
3.19 Roadworker injured...No

1.3 Accident Reference:248124 Slight A47 AT JN WITH BLIND LANE Accident 11 of 11

1.7 Date & 1.9 Time.....Tuesday 21/11/2017 11:16
1.11 Grid co-ordinates.....611830/311161
1.10 Local Authority.....Broadland
1.12/1.13 1st road identity..A47
1.18/1.19 2nd road identity..U
1.22 Weather.....Fine
1.21 Light conditions.....Daylight
1.20a Crossing(human).....No Human control within 50m
1.20b Crossing(physical).....No crossing facility within 5
1.15 Speed limit.....50 Mph
1.14 Road type.....Single c'way
1.16 Junction detail.....Slip Road
1.17 Junction control.....Give way sign or uncontrolled
1.24 Special conditions...None
1.25 Carriageway hazards..None
1.5 Number of vehicles...2
1.6 Number of casualties.1
1.23 Surface.....Dry

Contributory Factors	Participant	Confidence	Did a police officer attend?
Failed to judge other person's path/speed (Driver/Rider - Error)	Vehicle 002	Possible	
Poor turn or manoeuvre (Driver/Rider - Error)	Vehicle 002	Possible	
Failed to judge other person's path/speed (Driver/Rider - Error)	Vehicle 001	Possible	Yes

Accident Description
VEHICLE 2 TURNED LEFT ONTO MAIN CARRIAGEWAY WHILST THEN WAITING IN STATIONARY TRAFFC WAS HIT AT THE REAR BY VEHICLE 1 CAUISNG VEHICLE 2 TO SPIN ONTO THE GRASS VERGE

2 Vehicles

2.4 Veh ref no.....1
2.17 Other vehicle.....0
2.5 Vehicle class.....Goods unknown weight
2.10 Junction location...Approaching or parked on approach
2.9 Restricted location.On main carriageway
2.8 Movement from/to....West East
2.7 Manoeuvres.....Going ahead other
2.11 Skidding.....No
2.13 Left c'way.....Did not leave c'way
2.6 Towing.....No
2.28 Foreign vehicle.....Not foreign
2.16 First impact.....Front
2.12 Hit object in c'way..None
2.14 Hit object off c'way.None
2.18 Parts damaged..... / /
2.21 Driver gender.....Male
2.22 Driver age.....52
2.24 Hit and Run.....No
2.23 Breath test.....Negative
2.29 Journey purpose.....Journey as part of work

2.4 Veh ref no.....2
2.17 Other vehicle.....0
2.5 Vehicle class.....Car
2.10 Junction location...Approaching or parked on approach
2.9 Restricted location.On main carriageway
2.8 Movement from/to....West East
2.7 Manoeuvres.....Waiting to go ahead but held up
2.11 Skidding.....No
2.13 Left c'way.....Left c'way near-side
2.6 Towing.....No
2.28 Foreign vehicle.....Not foreign
2.16 First impact.....Back
2.12 Hit object in c'way..None
2.14 Hit object off c'way.None
2.18 Parts damaged..... / /
2.21 Driver gender.....Male
2.22 Driver age.....66
2.24 Hit and Run.....No
2.23 Breath test.....Not provided
2.29 Journey purpose.....Other

1 Casualty

3.5 Cas ref no.....1
3.6 Casualty class.....Driver or Rider
3.7 Gender.....Male
3.8 Age.....66
3.9 Severity.....Slight
3.4 Vehicle no.....2
3.12 Ped Direction.....Not a pedestrian
3.15 Car passenger.....No
3.16 PSV passenger.....No
3.14 Seat belt usage.....
3.13 School pupil.....Other
(3.19 School .....)
3.10 Pedestrian location..Not a pedestrian
3.11 Pedestrian movement..Not a pedestrian
3.19 Roadworker injured...No

Appendix D - Staff Flow Diagrams A47/A1074 junction – AM and PM Peaks

Traffic Flow Diagrams

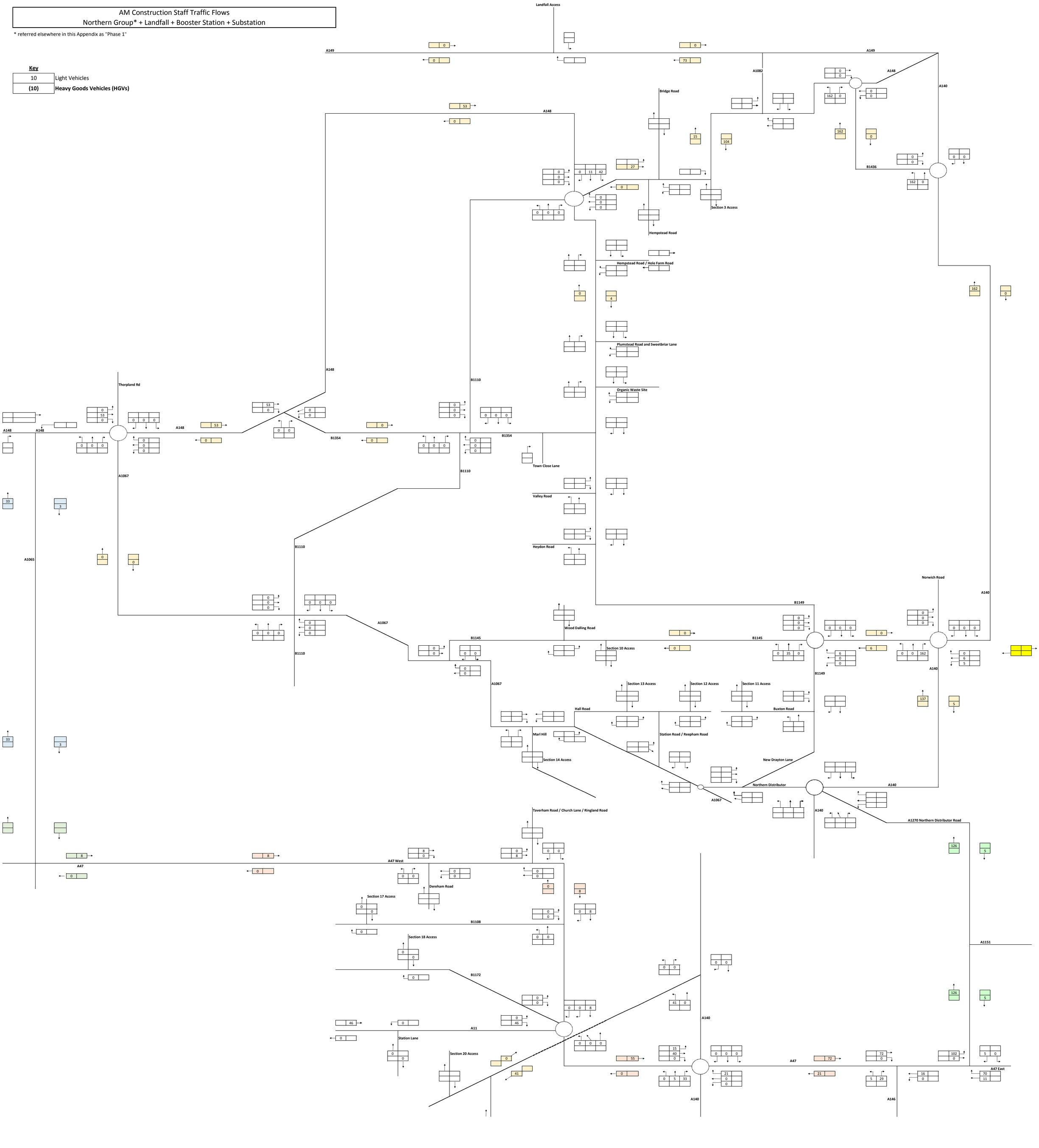
Construction Staff Traffic Flows
AM (07:00-08:00

AM Construction Staff Traffic Flows
Northern Group* + Landfall + Booster Station + Substation

* referred elsewhere in this Appendix as "Phase 1"

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

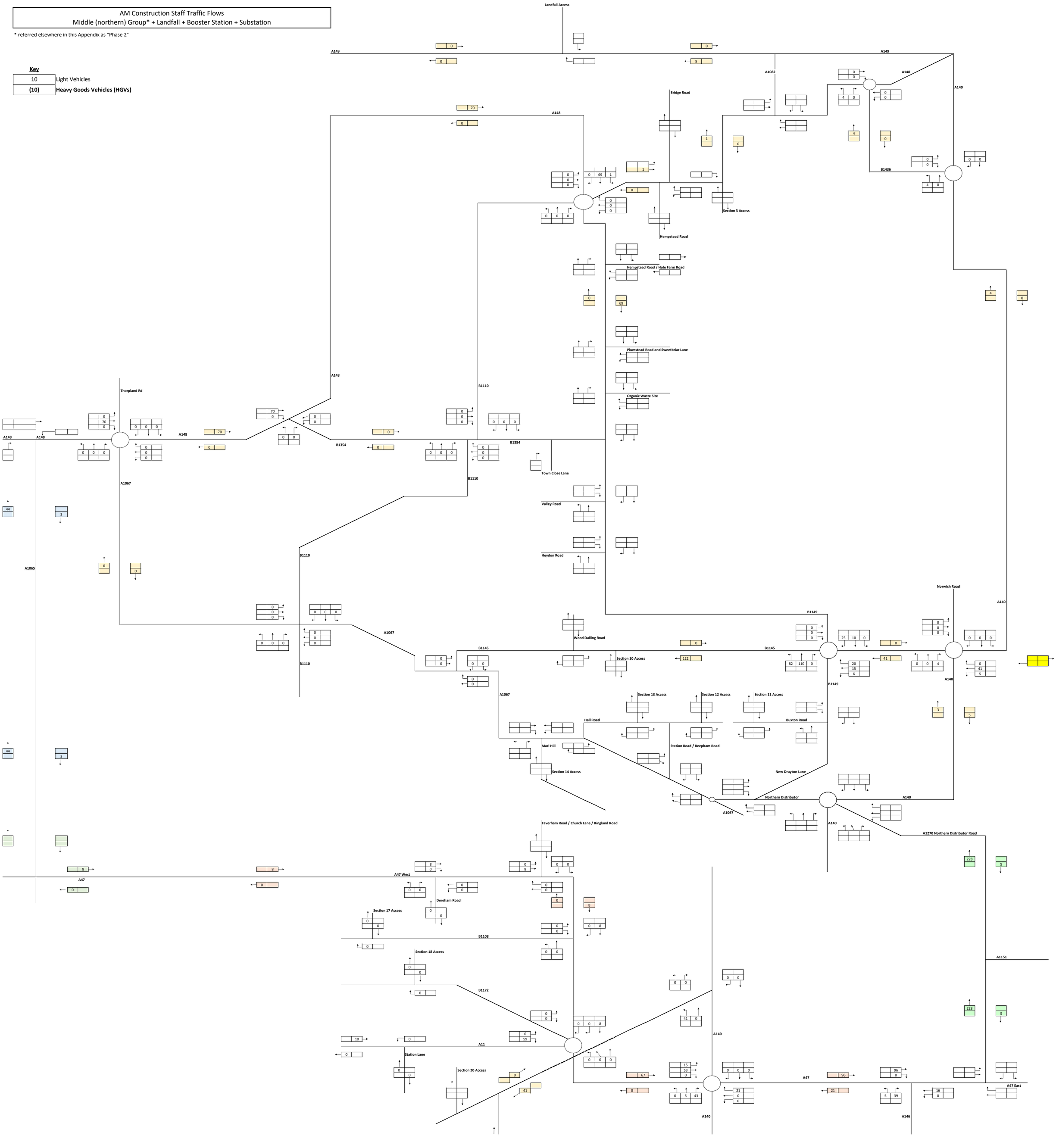


AM Construction Staff Traffic Flows
Middle (northern) Group* + Landfall + Booster Station + Substation

* referred elsewhere in this Appendix as "Phase 2"

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

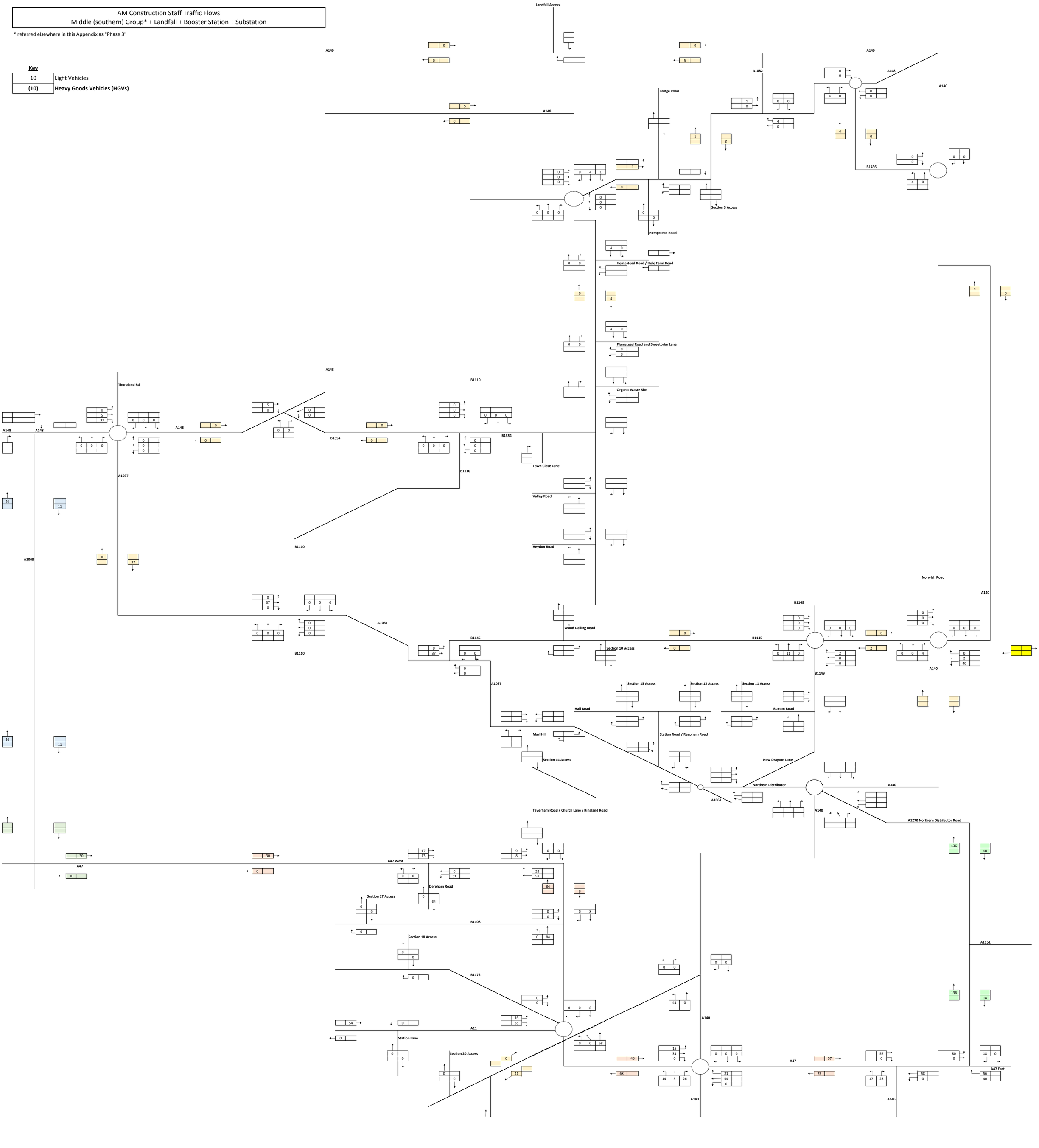


AM Construction Staff Traffic Flows
Middle (southern) Group* + Landfall + Booster Station + Substation

* referred elsewhere in this Appendix as "Phase 3"

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

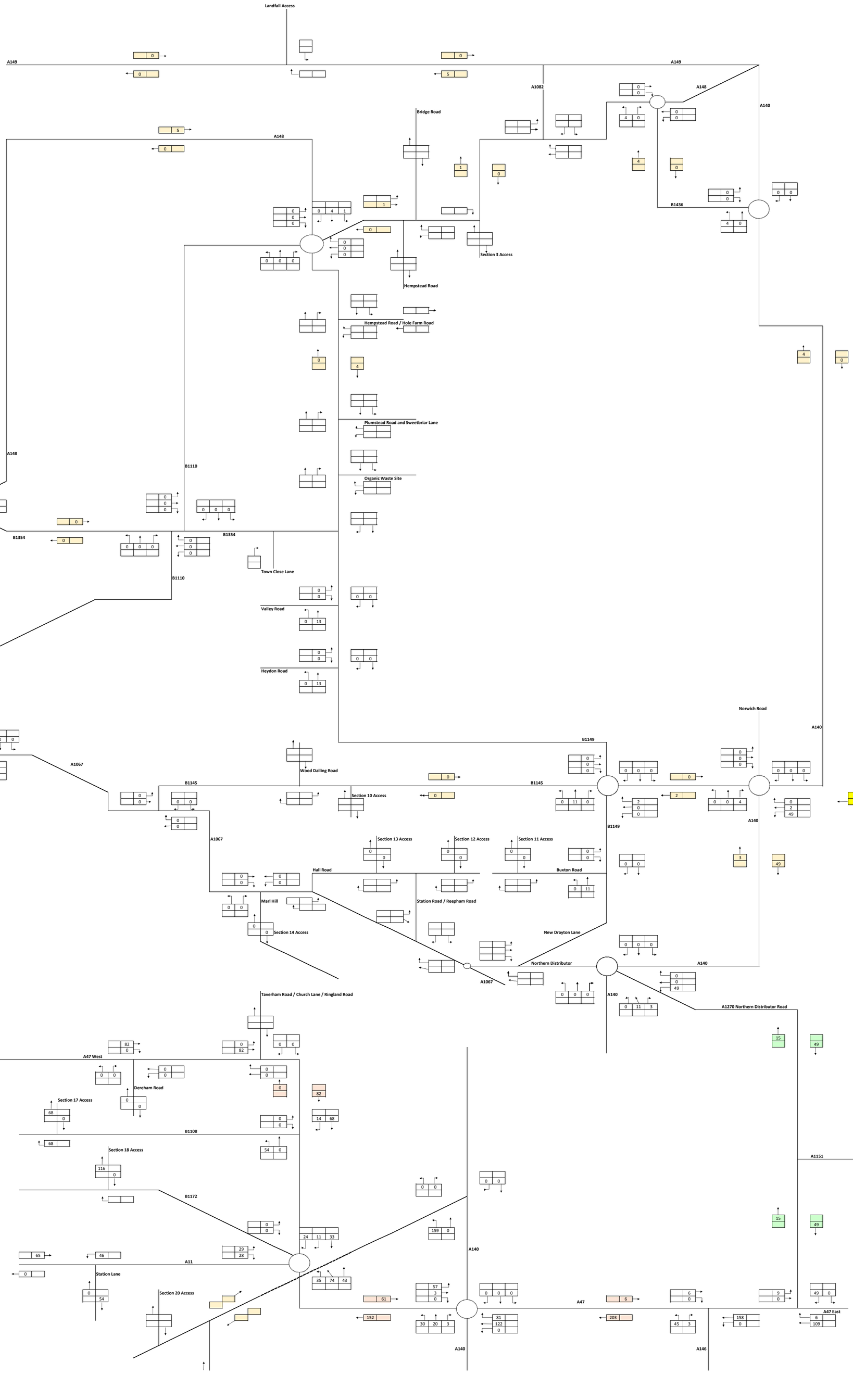


AM Construction Staff Traffic Flows
Southern Group* + Landfall + Booster Station + Substation

* referred elsewhere in this Appendix as "Phase 4"

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



Traffic Flow Diagrams

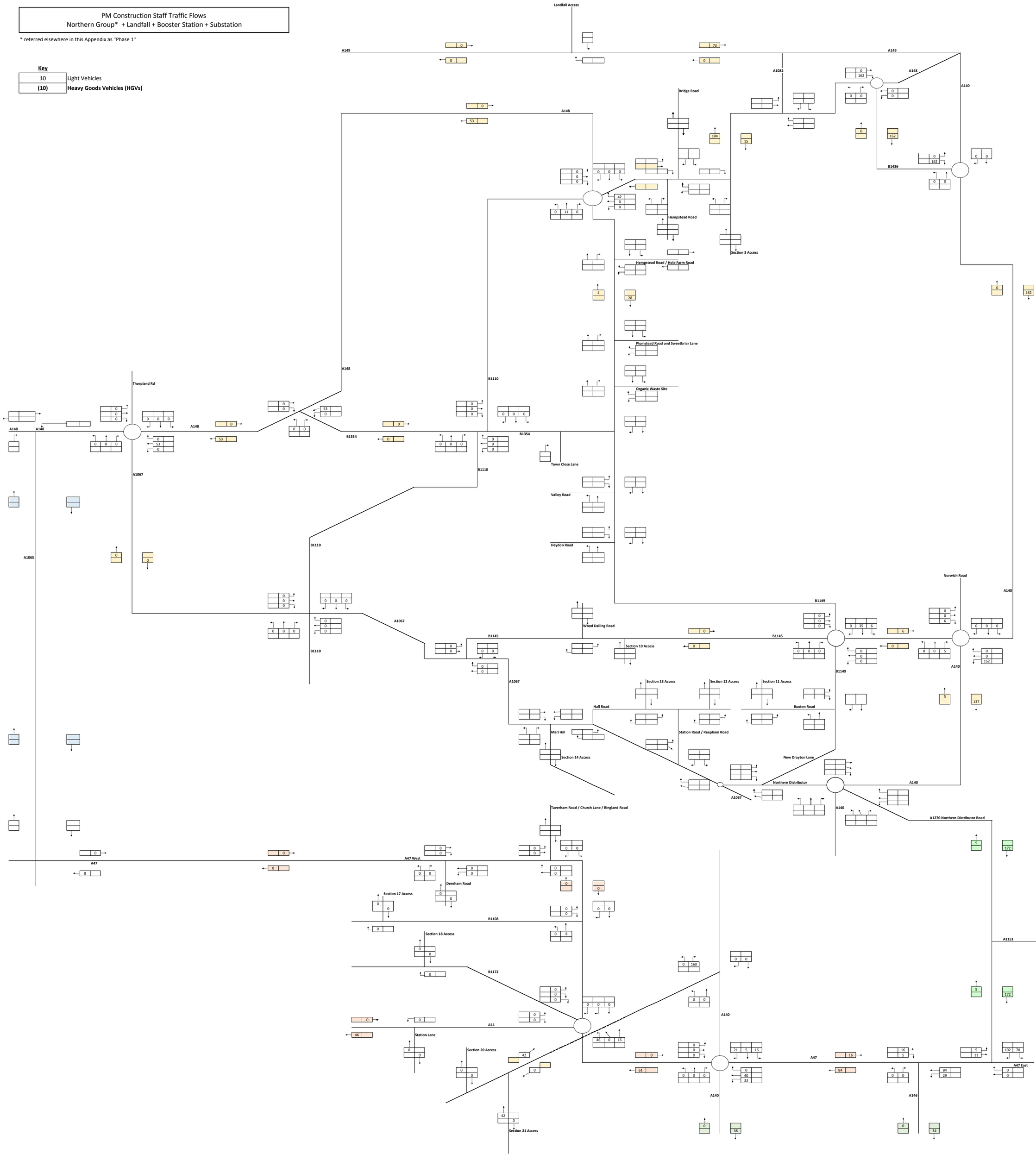
Construction Staff Traffic Flows
PM (18:00-19:00)

PM Construction Staff Traffic Flows
Northern Group* + Landfall + Booster Station + Substation

* referred elsewhere in this Appendix as "Phase 1"

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

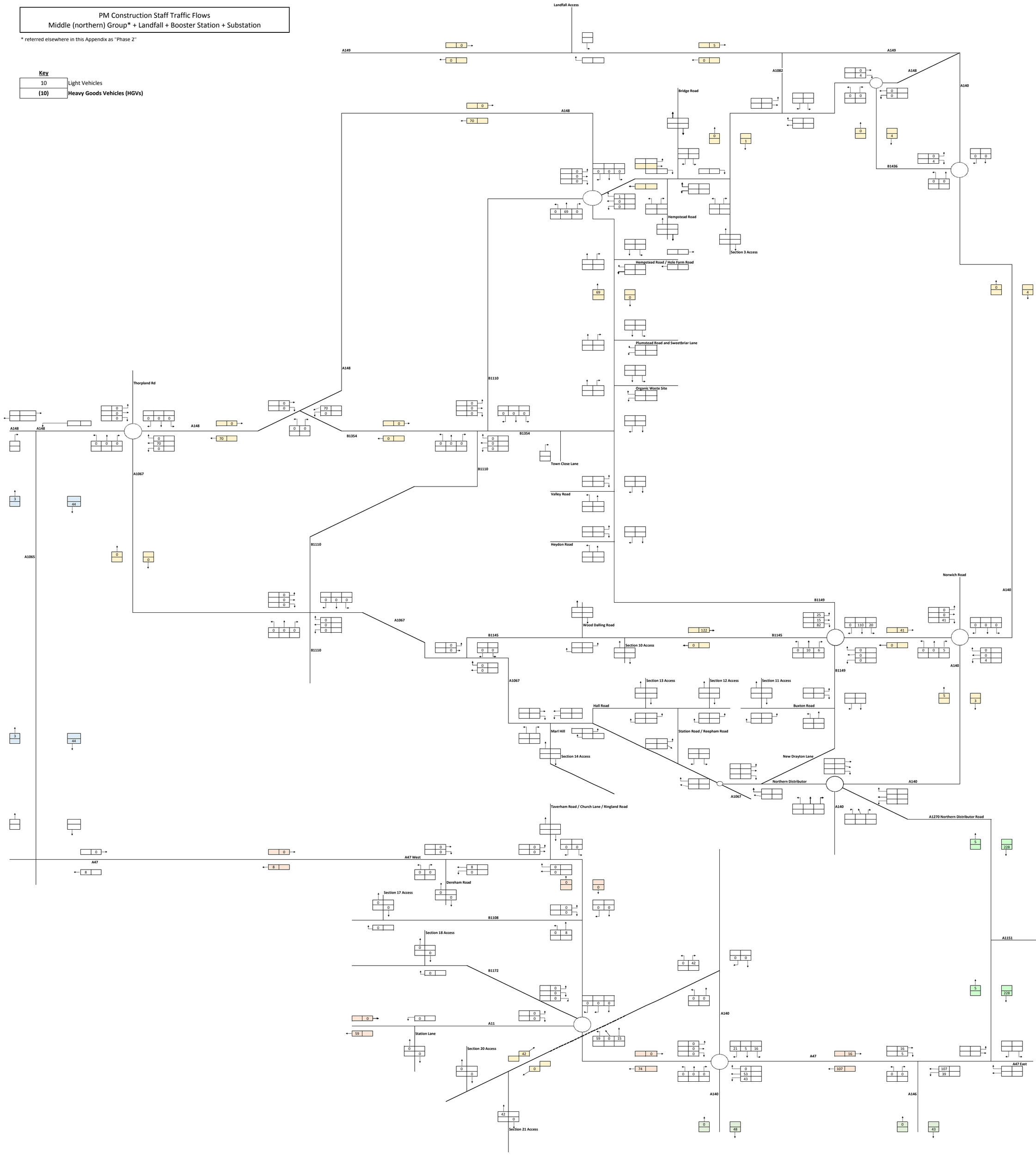


PM Construction Staff Traffic Flows
Middle (northern) Group* + Landfall + Booster Station + Substation

* referred elsewhere in this Appendix as "Phase 2"

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

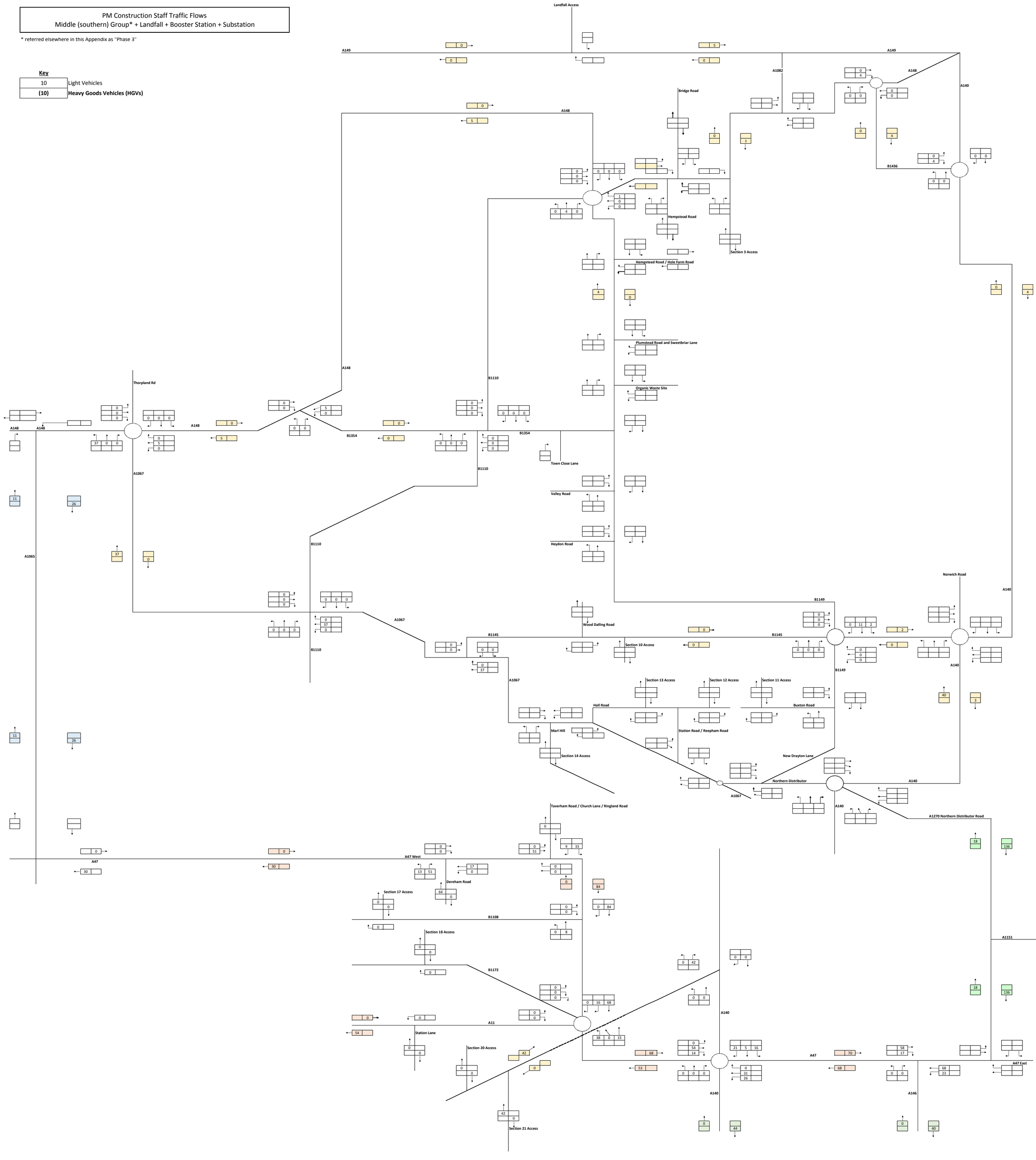


PM Construction Staff Traffic Flows
Middle (southern) Group* + Landfall + Booster Station + Substation

* referred elsewhere in this Appendix as "Phase 3"

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

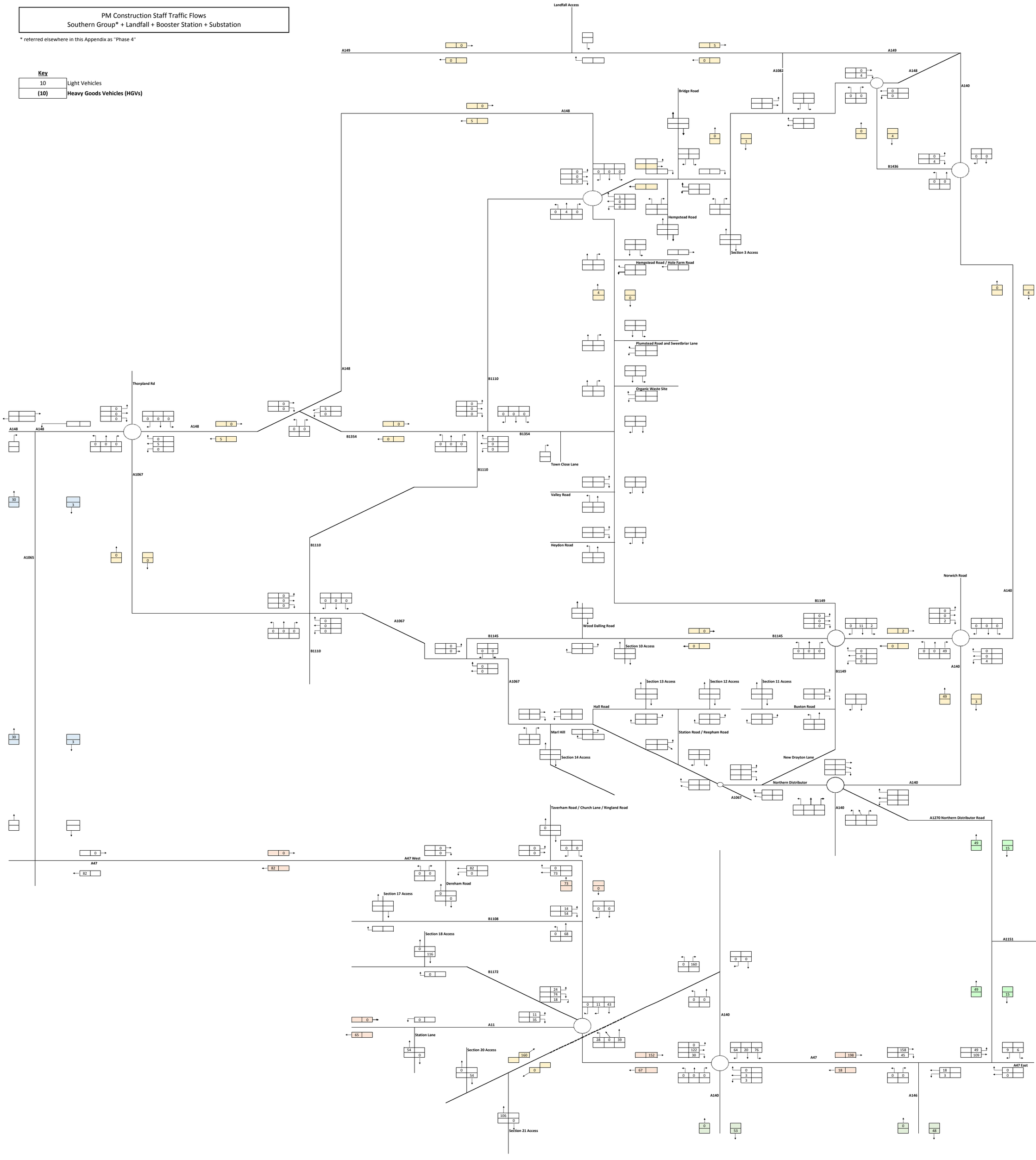


PM Construction Staff Traffic Flows
Southern Group* + Landfall + Booster Station + Substation

* referred elsewhere in this Appendix as "Phase 4"

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



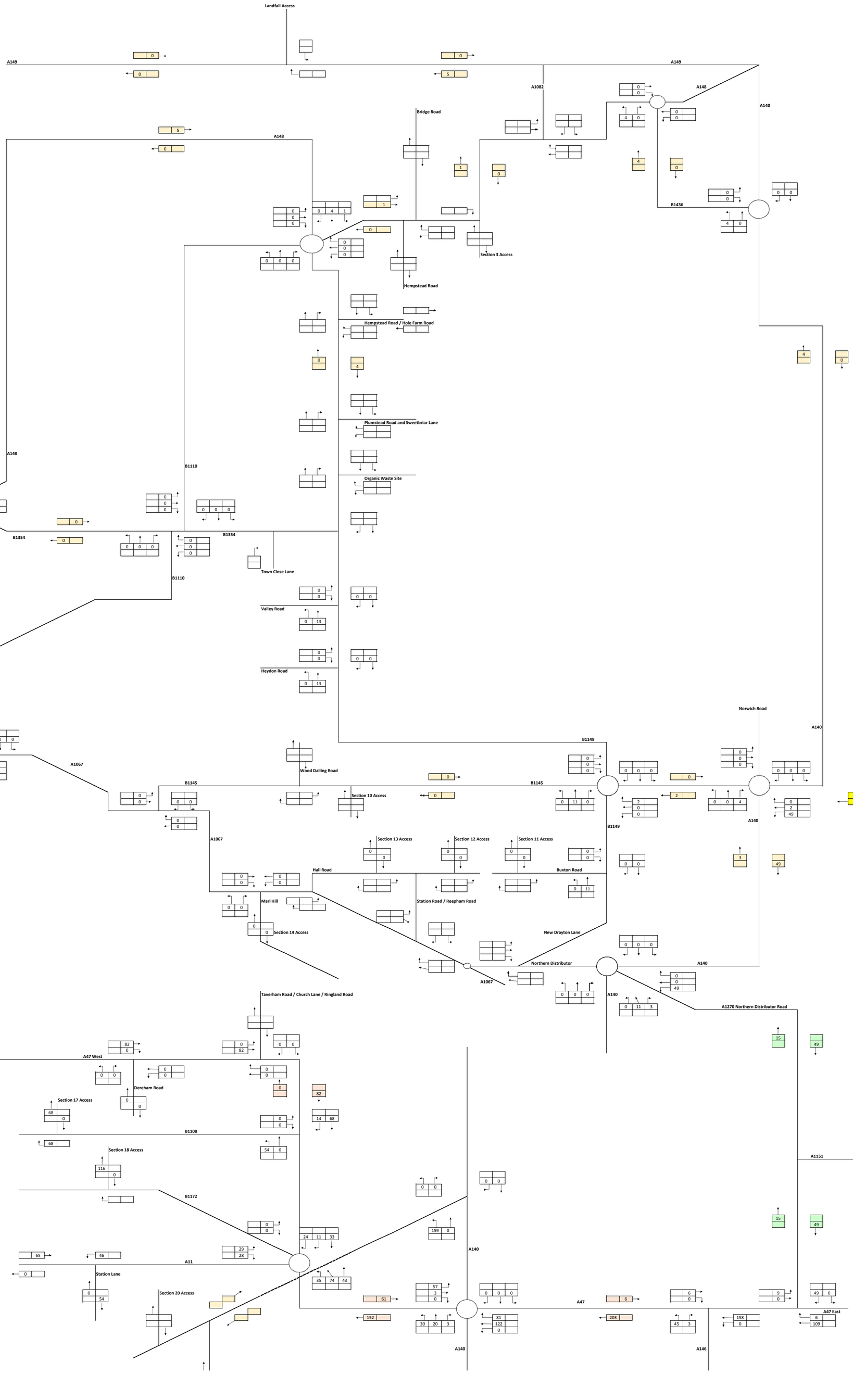
Appendix E - Staff Flow Diagrams A47/A140 junction – AM and PM Peaks

AM Construction Staff Traffic Flows
Southern Group* + Landfall + Booster Station + Substation

* referred elsewhere in this Appendix as "Phase 4"

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**

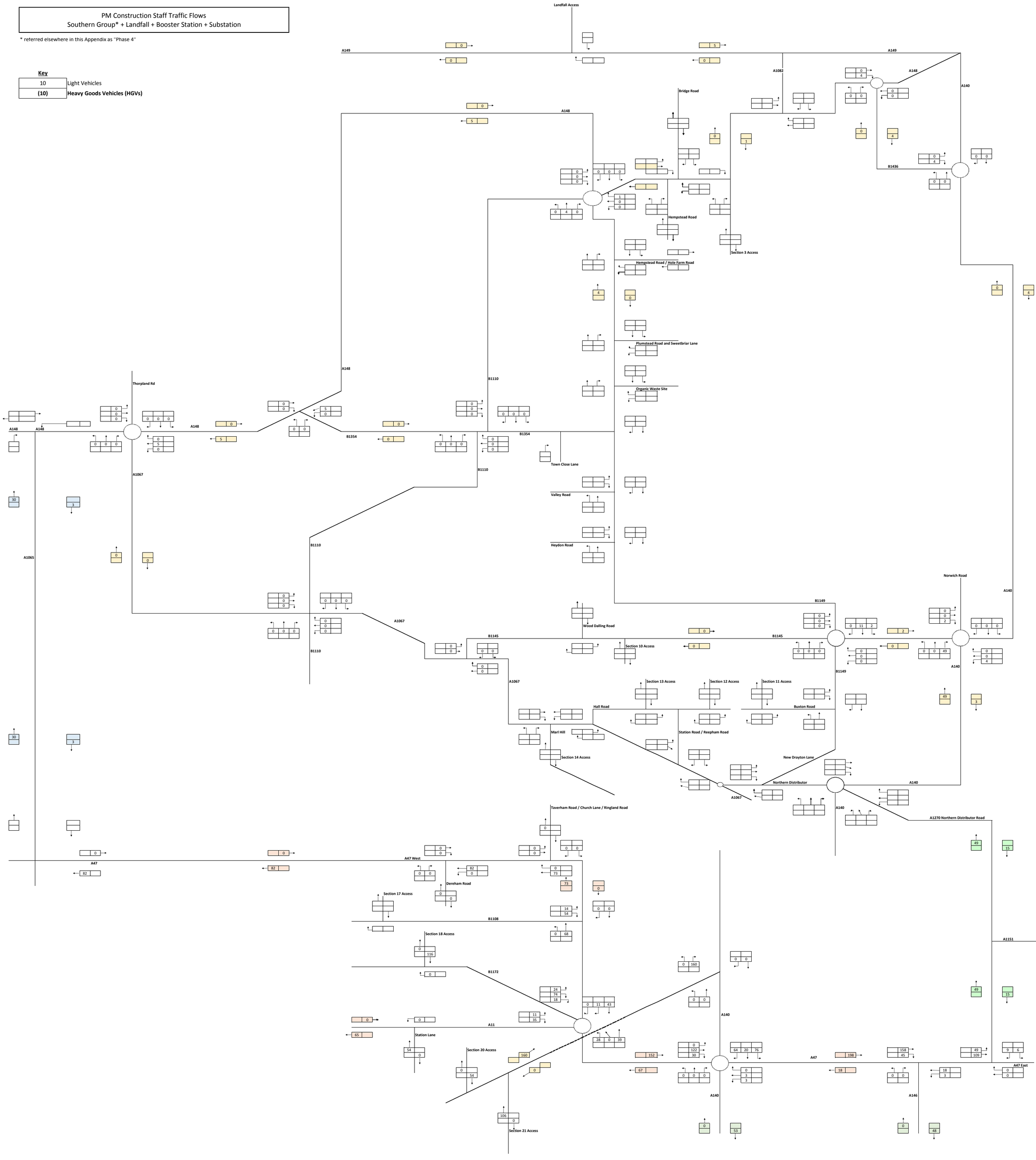


PM Construction Staff Traffic Flows
Southern Group* + Landfall + Booster Station + Substation

* referred elsewhere in this Appendix as "Phase 4"

Key

10	Light Vehicles
(10)	**Heavy Goods Vehicles (HGVs)**



Hourly Construction HGV Flows

Southern Group* + Landfall + Booster Station + Substation

* referred elsewhere in this Appendix as "Phase 4"