

DevHU0144 Immingham Green Energy Terminal

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Introduction and background

In September 2023, Associated British Ports [ABP] (the Applicant) submitted an application for a Development Consent Order [DCO] to authorise the construction and operation of a new multi-user green energy terminal [the project] to be located on the eastern side of the Port of Immingham. The project is referred to as the Immingham Green Energy Terminal [IGET].

National Highways has been identified as a statutory consultee pursuant to Section 42 of the Planning Act 2008, and as a relevant consultation body for the purposes of Regulations 11 and 13 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. The Local Planning Authority [LPA] is North East Lincolnshire Council [NELC].

Previously, the Jacobs SYSTRA Joint Venture [JSJV], on behalf of National Highways, reviewed the following documents:

- Immingham Green Energy Terminal 6.2 Environmental Statement Chapter 11: Traffic & Transport (TR030008 Volume 6);
- 6.4 Environmental Statement Appendices Appendix 11.B: Traffic and Transport Cumulative Effects Assessment,
- Immingham Green Energy Terminal 6.7 Outline Construction Traffic Management Plan (TR030008 Volume 6); and
- Volume 6 Appendix A: Outline Construction Worker Travel Plan.
- 03 National Highways Relevant Representations IGET DCO Examination Response
- 9.33 Outline Operational Travel Plan (TR030008/EXAM/9.3) (March 2024)

DTA, the Applicant's transport consultant, has since responded to National Highways' previous comments regarding the "03 National Highways Relevant Representations IGET DCO Examination Response", providing a report entitled "Report on traffic matters related to IGET for National Highways" (May 2024), referred to within this Technical Memorandum as the "IGET traffic report".

The JSJV has reviewed IGET traffic report on behalf of National Highways and would offer the following comments.

Background

Previous response

In March 2024, the JSJV reviewed the supporting documentation, as listed within the introduction to this Technical Memorandum, and concluded that consideration should be given to the following:

- Traffic flow diagrams have not been provided, therefore, we cannot confirm whether or not the flows have been extracted from the IEERT TA correctly, or if they align with the modelling. As a result, the JSJV would recommend the base and committed traffic flow diagrams are provided for review.
- DTA notes the modelling results indicate that in all scenarios, the A180/A1173 operates within capacity at all of the arms, with negligible increases in the total queue and delay as a result of the development construction traffic. Although JSJV would agree with DTA that the modelling results show no significant impact forecast in association with the proposed development, we would note the results presented within the Response to National Highways (IGET Response) are different from those contained within the Junctions 10 output, the reason for this is not known and should be clarified.
- The JSJV would recommend DTA presents the distribution of the 87 two-way vehicle trips on to the network, in order to show the anticipated impact of vehicle trips on the SRN.

Immingham Eastern Ro-Ro Terminal

The JSJV notes that DTA has utilised the junction modelling for the A180/A1173 junction, which was carried out by themselves within the “*Update to Technical Note 2 – Junction Modelling Assessments*” [TN2], prepared in support of the separate Immingham Easter Ro-Ro Terminal [IERT] DCO application (DevHU0075).

We note that the junction modelling presented within DTA’s TN2 has previously been accepted by National Highways and was considered to be appropriate for this assessment.

Viking

Requested that Viking be included as a test, this has been done.

Existing situation

The location of the application site, relative to the Strategic Road Network [SRN], is presented in **Figure 1**.

The site is located approximately:

- 1.6km to the north of the A180 / A1173 junction [Stallingborough Interchange].
- 3.2km to the southeast of the A160 / Manby Road junction;
- 5.3km to the east of the A160 / A1077 junction; and
- 6km to the east of the A180 / A160 junction [Brocklesby Interchange].



Figure 1. Site location in relation to the Strategic Road Network

IGET traffic report: Report on traffic matters related to IGET for National Highways (May 2024)

Construction vehicle trip generation and distribution

Table 1 highlights DTA's proposed construction worker vehicle trip distribution, which has been previously agreed and considered appropriate.

As can be seen in **Table 1**, the development is forecast to generate at the A180 / A1173 junction:

- 105 two-way vehicle trips between 07:00-08:00;
- 27 two-way vehicle trips between 08:00-09:00;
- 27 two-way vehicle trips between 16:00-17:00; and
- 70 two-way vehicle trips between 17:00-18:00.

The JSJV would note that this is consistent with the construction vehicle trip generation shown within the ES, as a result, we would again consider it to be appropriate.

Table 1. DTA proposed construction worker vehicle trip distribution

Hour	Movement	Vehicle trips		
		Arrival	Departure	Total
07:00-08:00	A180 W	17	1	18
	A180 E	49	4	53
	A1173	30	2	33
	Total	97	8	105
08:00-09:00	A180 W	3	1	5
	A180 E	10	4	14
	A1173	6	2	8
	Total	19	8	27
16:00-17:00	A180 W	1	3	5
	A180 E	4	10	14
	A1173	2	6	8
	Total	8	19	27
17:00-18:00	A180 W	2	10	12
	A180 E	6	30	36
	A1173	4	18	22
	Total	12	58	70

HGV trip distribution

Table 2 highlights DTA's proposed HGV trip distribution, which has been previously agreed and considered appropriate.

Table 2. DTA proposed HGV trip generation

Hour	Movement	Vehicle trips		
		Arrival	Departure	Total
07:00-08:00	A180 W	6	4	10
	A180 E	5	4	8
	Total	11	8	19
08:00-09:00	A180 W	5	4	9
	A180 E	4	4	8
	Total	9	8	17
16:00-17:00	A180 W	5	5	10
	A180 E	4	4	8
	Total	9	9	18
17:00-18:00	A180 W	5	5	10
	A180 E	4	4	8
	Total	9	9	18

As can be seen in **Table 2**, the development is forecast to generate at the A180 / A1173 junction:

- 19 two-way HGV trips between 07:00-08:00;
- 17 two-way HGV trips between 08:00-09:00;
- 18 two-way HGV trips between 16:00-17:00; and
- 18 two-way HGV trips between 17:00-18:00.

The JSJV would note that this is consistent with the HGV trip generation shown within the ES, as a result, we would again consider it to be appropriate.

Total construction vehicle trip generation

The JSJV has presented the total construction vehicle trip generation distributed across the A180/A1173 junction in **Table 3** by combining the construction workers and HGV trips from **Table 1** and **Table 2**.

We would note that the total construction vehicle trip generation shown in **Table 3** has been appropriately derived from the ES. The volume of vehicle trips shown in **Table 3** has the potential to cause a material impact at the A180/A1173 junction, as a result, National Highways previously requested junction capacity assessments be undertaken. DTA has since provided an assessment of the A180/A1173 junction.

Table 3. Total construction traffic at the A180/A1173 junction

Hour	Movement	Vehicle trips		
		Arrival	Departure	Total
07:00-08:00	A180 W	23	5	28
	A180 E	54	8	61
	A1173	30	2	33
	Total	108	16	124
08:00-09:00	A180 W	8	5	14
	A180 E	14	8	22
	A1173	6	2	8
	Total	28	16	44
16:00-17:00	A180 W	6	8	15
	A180 E	8	14	22
	A1173	2	6	8
	Total	17	28	45
17:00-18:00	A180 W	7	15	22
	A180 E	10	34	44
	A1173	4	18	22
	Total	21	67	88

Junction assessments

The assessment years and scenarios proposed by DTA are as follows:

- Base 2026;
- Base 2026 + Committed Development;
- Base 2026 + Committed Development + IERRT;
- Base 2026 + Committed Development + IERRT + the Project (07:00–0800 and 16:00–17:00); and
- Base 2026 + Committed Development + IERRT + the Project + Viking CCS.

We would note that the largest number of HGV and daily workforce trips is forecast to occur during the first phase of construction works (2025-2027) with the peak month having been identified as month 23 in late 2026; JSJV would therefore consider 2026 as an appropriate assessment year.

Furthermore:

“A Sensitivity Test has also been undertaken using construction traffic generation between 06:00–07:00 and 18:00–19:00, which with reference to Table 11-13 Construction Worker Traffic Daily Profile in ES Chapter 11: Traffic and Transport [APP-053] results in a total of 273 and 288 construction worker trips at these peak hours respectively.

The Sensitivity Test then utilises the IERRT traffic data, from the IERRT TA Addendum Report, for the peak hours between 07:00–08:00 and 16:00–17:00 and adds the highest Project construction traffic generation in the AM and PM periods to reflect a robust level of assessment. This comprises the following scenario:

- *Base 2026 + Committed Development + IERRT + the Project (Sensitivity Test, Project construction traffic between 06:00–07:00 and 18:00–19:00)”*

We welcome the inclusion of the sensitivity test.

Traffic flows

Previously, we recommended that the base and committed traffic flow diagrams be provided for review. As these had not been presented within the previous report, we could not confirm that the flows had been extracted from the IERRT TA correctly, or if they align with the modelling.

The agreed IERRT 2021 traffic flows are taken from the IERRT TA Addendum (December 2023). We have cross-referenced the flows provided within Appendix 3 of the IGET traffic report with the IERRT TA for the following:

- Base 2026;
- Committed development; and
- IERRT.

After review, we would note the traffic flows associated with the above, as shown in Appendix 3 of the IGET traffic report, have been accurately derived from the IERRT TA.

Committed development

As previously mentioned, along with IERRT development, on request from National Highways, DTA has considered the development traffic flows associated with Viking CCS as committed.

DTA has obtained the Viking CCS AM and PM peak traffic flows from Table 12-36 in the “Construction Traffic Distribution of Chapter 12: Traffic and Transport of the Viking CCS Environmental Statement”. With reference to Section 12.6 / Table 12-31, 9% of inbound and 8% of outbound construction trips will occur in the peak hours (0700 to 0800 and 1600 to 1700), and these have then been assigned to the A180 / A1173 junction by DTA as shown in **Figure 2**, where:

- A is A1173 N;
- B is A180 E; and
- C is A1173 S.

Table 1: Viking CCS Traffic Peak Hour Turning Flows at the A180/ A1173 Junction

	A	B	C	D
A	0	1	3	3
B	2	0	260	26
C	7	38	0	114
D	7	38	115	0

Figure 2. Distribution of Viking CCS peak hour traffic flows at A180 / A1173

The JSJV has reviewed the Viking Traffic and Transport chapter of the Viking CCS Environmental Statement and can confirm that the flows shown in **Figure 2** have been extracted appropriately.

TEMPro

DTA has used TEMPro growth factors to account for strategic traffic growth, as shown in **Table 4**. We have reviewed the growth factors using TEMPro and would consider the factors used to be appropriate.

Table 4. TEMPro growth factor comparison

	DTA		JSJV	
	AM Peak	PM Peak	AM Peak	PM Peak
2021-2026	1.0367	1.0359	1.0373	1.0379

Junctions 10 Model

The submitted Junctions 10 PDF modelling outputs for the A180 / A1173 junction (Stallingborough Interchange) has been reviewed. The key parameters within the model have been compared with the Junction 10 modelling previously undertaken, associated with Immingham Eastern Ro-Ro Terminal (IERT), and which National Highways approved.

The key inputs within the submitted Junctions 10 assessment have been reviewed and we note the following:

- Vehicle length is 5.75m and this is consistent with the IERT assessment;

- RFC threshold is 0.85 and this is consistent with the IERT assessment;
- Average delay threshold is 36 seconds and this is consistent with the IERT assessment; and
- Q threshold is 20 PCU and this is consistent with the IERT assessment.

The geometry input within the submitted Junctions 10 has been reviewed and we note the following:

- A1173 (north) – the geometry on this arm is consistent with the IERT assessment;
- A180 (east) – the geometry on this arm is consistent with the IERT assessment;
- A1173 (south) – the geometry on this arm is consistent with the IERT assessment;
- A180 (west) – the geometry on this arm is consistent with the IERT assessment;
- Large roundabout data for each arm has been reviewed and this is consistent with the IERT assessment; and
- It is concluded the Junctions 10 input geometry is acceptable.

The traffic demand input within the submitted Junctions 10 has been reviewed and we note the following:

- The 'one hour' traffic demand profile has been adopted and this is consistent with the IERT assessment;
- The AM assessment time period is 07:00-08:30 compared with 06:45-08:15 with the IERT assessment, this is understood to be a result of different data sources;
- The PM assessment time period is 17:00-18:30 compared with 15:45-17:15 with the IERT assessment, this is understood to be a result of different data sources;
- Traffic flows are input in origin-destination format consistent with the IERT assessment;
- The input traffic flows are confirmed to align with the traffic flows contained within Appendix 2 of the IGET traffic report;
- The HV Percentages PCU factor is 2.00 and is consistent with the IERT assessment;
- The 2026 Baseline AM 'vehicle mix' is consistent with the IERT assessment 2021 Base; and
- The 2026 Baseline PM 'vehicle mix' is consistent with the IERT assessment 2021 Base.

With regard to calibration and validation of the Junctions 10 model, we note the following:

- There has been no calibration and validation undertaken in association with the submitted Junctions 10 outputs;
- There has been no queue data presented; and

- There was no calibration and validation undertaken for the previous IERT assessment which was accepted by National Highways.

We have reviewed the performance of the junction based on typical traffic data obtained from Google Maps. It is seen that there is negligible delay experienced during the AM peak as shown in **Figure 3**. There is also negligible delay experienced during the PM peak as shown in **Figure 4**.

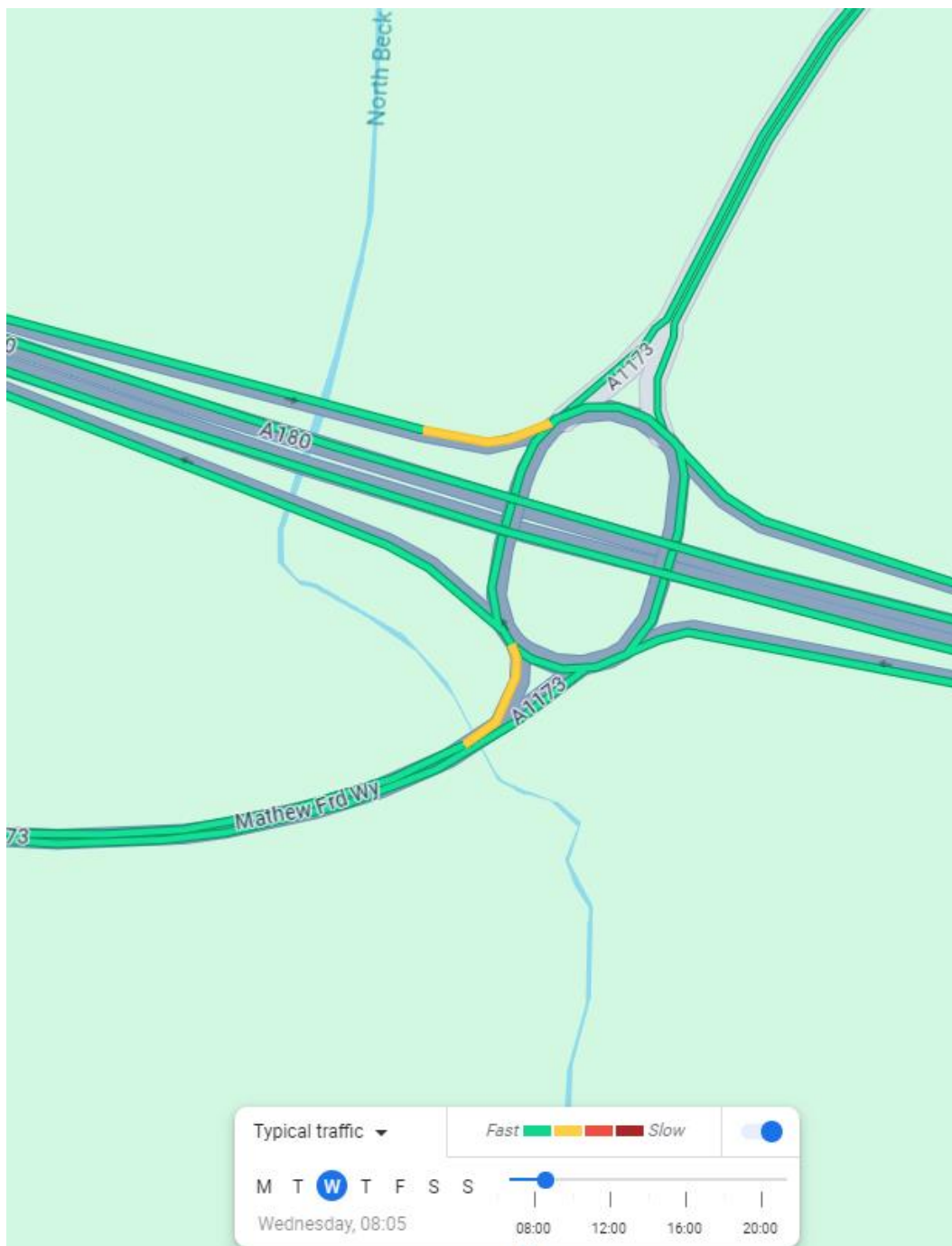


Figure 3. Google Maps typical traffic AM peak¹

¹ © Google 2024

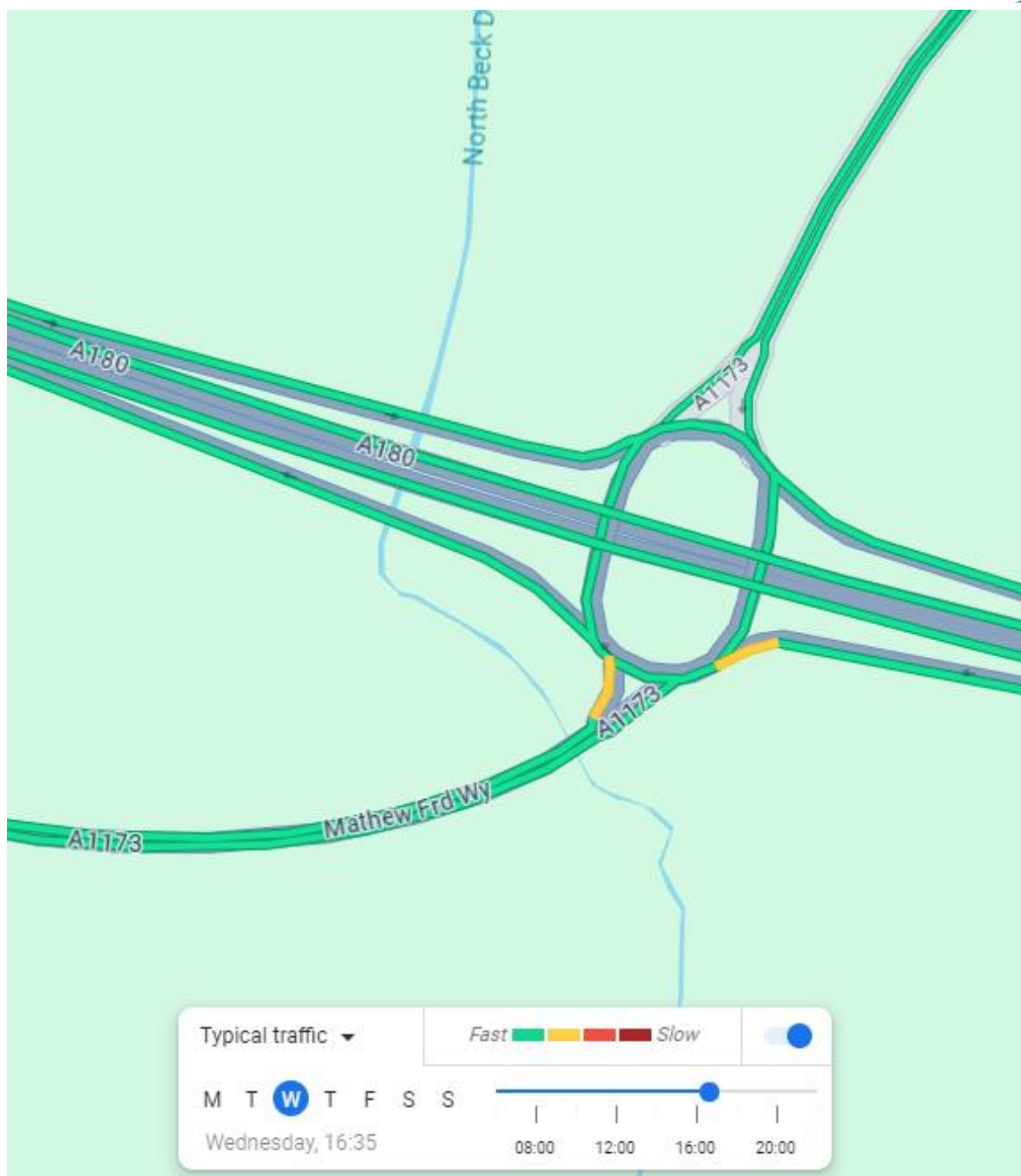


Figure 4. Google Maps typical traffic PM peak

Junction capacity results

The JSJV has presented the results of DTA's assessment of A180/A1173 in **Figure 5** for the year 2026.

Table 5: Base 2026

Arm	AM			PM		
	Q	Delay	RFC	Q	Delay	RFC
A – A1173 N	0.2	2.01	0.12	0.8	2.42	0.44
B – A180 E	0.4	1.92	0.30	0.3	2.10	0.19
C – A1173 S	0.3	2.85	0.25	0.1	2.14	0.10
D – A180 W	0.4	3.26	0.24	0.2	2.46	0.12

Source: AECOM

Table 6: Base 2026 plus Committed Development

Arm	AM			PM		
	Q	Delay	RFC	Q	Delay	RFC
A – A1173 N	0.4	2.41	0.22	1.5	3.38	0.57
B – A180 E	0.8	2.54	0.42	0.4	2.69	0.29
C – A1173 S	0.1	4.45	0.41	0.2	2.53	0.16
D – A180 W	1.0	5.51	0.43	0.4	2.93	0.21

Source: AECOM

Table 7: Base 2026 plus Committed Development plus IERRT

Arm	AM			PM		
	Q	Delay	RFC	Q	Delay	RFC
A – A1173 N	0.5	2.60	0.25	1.9	3.98	0.63
B – A180 E	0.8	2.77	0.44	0.5	3.06	0.32
C – A1173 S	0.8	5.05	0.44	0.2	2.80	0.18
D – A180 W	1.6	7.52	0.55	0.7	3.59	0.31

Source: AECOM

Table 8: Base 2026 plus Committed Development plus IERRT plus IGET Construction (07:00 to 08:00 and 16:00 to 17:00)

Arm	AM			PM		
	Q	Delay	RFC	Q	Delay	RFC
A – A1173 N	0.5	2.64	0.26	2.1	4.18	0.64
B – A180 E	0.9	2.96	0.47	0.5	3.19	0.34
C – A1173 S	1.0	5.84	0.49	0.2	2.86	0.18
D – A180 W	2.1	9.43	0.61	0.7	3.68	0.32

Source: AECOM

Table 9: Base 2026 plus Committed Development plus IERRT plus IGET Construction (Sensitivity Test 06:00 to 07:00 and 18:00 to 19:00)

Arm	AM			PM		
	Q	Delay	RFC	Q	Delay	RFC
A – A1173 N	0.5	2.59	0.26	2.5	4.78	0.69
B – A180 E	0.9	2.92	0.47	0.6	3.35	0.35
C – A1173 S	1.0	5.92	0.50	0.2	2.89	0.19
D – A180 W	2.1	9.53	0.61	0.7	3.62	0.31

Source: AECOM

Figure 5. DTA junction capacity assessment results (all scenarios)

DTA notes that the results indicate, in all scenarios, that the junction operates within capacity at all of the arms, with negligible increases in the total queue and delay as a

result of the development construction traffic, as can be seen in **Figure 5**. The JSJV would agree that the modelling results show no significant impact forecast in association with the proposed development, therefore, we would suggest that it is unlikely that any unacceptable impact on highway safety or severe cumulative impacts on the SRN will occur.

A180 / A1173 Junction Assessment with Viking CCS

The JSJV has presented the results of DTA's assessment of A180/A1173 in **Figure 6** for the year 2026 when also considering the Viking CCS traffic flows.

Table 2: A180 / A1173 Modelling Results: Base 2026 + Committed Development + IERRT Development + PROJECT (Actual) + Viking

ARM	Base 2026 + Committed Development + IERRT Development + PROJECT (Actual) + Viking					
	AM (0700 to 0800)			PM (1600 to 1700)		
	Q	Delay	RFC	Q	Delay	RFC
A – A1173 N	0.6	3.00	0.29	2.8	5.60	0.71
B – A180 E	1.2	3.59	0.53	0.7	3.96	0.40
C – A1173 S	2.0	9.35	0.65	0.5	3.82	0.29
D – A180 W	4.6	17.03	0.77	1.1	4.31	0.40

Figure 6. DTA junction capacity assessment results (Viking scenario)

As can be seen in **Figure 6**, the junction operates within capacity at all of the arms, with negligible increases in the total queue and delay as a result of the addition of the Viking CCS development construction traffic.

Operational assessment

Vehicle trip generation

Within the last report prepared by DTA “03 National Highways Relevant Representations IGET DCO Examination Response”, it was stated that the proportion of daytime and shift working had been amended from that given previously within the Traffic and Transport chapter of the IGET ES. The newly proposed volume of workers, as stated in the “03 National Highways Relevant Representations IGET DCO Examination Response” and the Outline Operational Travel Plan, was:

“From the total of 120 staff, 87 will work a normal daytime ‘nine to five’ and 33 will work over two separate 12-hour shifts starting at 07:00 and 19:00 respectively.”

However, within the latest IGET traffic report, it is stated that:

“From the total of 120 staff, 53 will work a normal daytime ‘nine to five’ and 67 will work over two separate 12-hour shifts starting at 07:00 and 19:00 respectively.”

The JSJV would recommend that clarity be sought regarding the anticipated volume of workers. We would however note that the difference in the two trip generations is not considered to be material and would unlikely result in a severe impact to the operation of the SRN or highway safety.

Summary and Conclusions

On the basis of this review, the recommendation to National Highways in relation to this development proposals is:

No objection – Although noting assessment deficiencies (as identified below)

The review has highlighted the following deficiencies:

- Clarity is sought over the anticipated volume of workers in the operational phase.