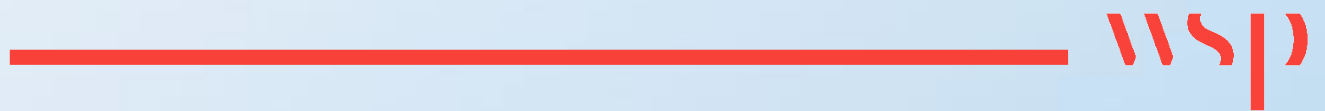


# Appendix 8.1

## Transport Statement





C.GEN Killingholme Limited

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# **NORTH KILLINGHOLME POWER PROJECT**

Transport Statement





C.GEN Killingholme Limited

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# NORTH KILLINGHOLME POWER PROJECT

## Transport Statement

**TYPE OF DOCUMENT (VERSION) PUBLIC**

**PROJECT NO. 70055743**

**OUR REF. NO. TRANSPORT STATEMENT**

**DATE: JULY 2020**

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# 1 INTRODUCTION

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## 1.1 OVERVIEW

- 1.1.1. This Transport Statement has been prepared following pre-application discussions with North Lincolnshire Council (NLC), North East Lincolnshire Council (NELC) and Highways England in relation to the proposed amendments to C.GEN Killingholme Limited's (C.GEN) consented Nationally Significant Infrastructure Project (NSIP) construction of a new 470MWe thermal generating station at North Killingholme, North Lincolnshire. The generating station would operate as either a Combined Cycle Gas Turbine (CCGT) plant or as an Integrated Gasification Combined Cycle (IGCC) plant ('the Project').
- 1.1.2. An application ('the Application') was made for a Development Consent Order, and an order was granted by the Secretary of State on 11 September 2014 (and amended by correction order on 26 October 2015) (together 'the Order'). Since that time, C.GEN has been developing the Project for delivery, including appointing an EPC contractor and participating in the Capacity Market auctions.
- 1.1.3. C.GEN is seeking amendments to the Order to extend the date by which the Order must be implemented in the form of a Non-Material Amendment application ('the NMA application'). In order to ensure the consent remains fit for purpose and will meet current environmental standards and policy objectives, other minor modifications to the Order are proposed. However, no changes are sought to the technology used, modes of operation or the Order Limits.
- 1.1.4. A Transport Scoping Note was issued on 8th April 2020 and virtual meetings were held with NLC on 22nd April 2020, NELC on 15th April 2020, and Highways England on 22nd April 2020. Subsequent email discussions have taken place and an updated Transport Scoping Note was issued to NLC, NELC and HE on 15th June 2020 in advance of a virtual meeting held on 18th June 2020 to discuss any outstanding elements of the project.
- 1.1.5. Following the scoping meeting, it was agreed that the approach taken to update the baseline was acceptable and that no additional highway capacity assessments were required as part of the updated Transport report to support the NMA application.
- 1.1.6. This Transport Statement sets out the agreed approach to update the baseline and provides updates relating to policy and committed highway improvement schemes. This report acknowledges that the baseline has changed with respect to increased available capacity and volume of traffic flows, however, it concludes that the existing embedded mitigation is sufficiently flexible to manage the impacts of the construction scenario traffic impacts.
- 1.1.7. This includes flexibility to review the option of offsetting shift patterns, deliveries of material, and export of waste; routing trips to evenly distribute the traffic impact across the routes to the Project site, and implementation of a range of sustainable measures to reduce the number of vehicle trips.
- 1.1.8. It is considered that the NMA application to extend the period of time to implement the Order would not result in a material change to the environmental impacts of the Project associated with traffic and transport and any localised impacts could be managed to the levels agreed during the consenting of the Order.

## 2 POLICY, LEGISLATION, AND GUIDANCE

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2.1.1. The revised list of national and local policy to be reviewed have been agreed with NLC, NELC, and Highway England. The following section provides an overview of the changes since the Order was granted.

- National Policy

- National Policy Statement EN-1 (July 2011). The NPS sets out national policy for the energy infrastructure. It has effect, in combination with the relevant technology specific NPS, on the decisions by the Infrastructure Planning Commission (IPC) on applications for energy developments that fall within the scope of the NPSs. It provides the primary basis for decisions under the IPC. No amendments have been published since the submission of the original DCO that would have a material impact on the Project;
- The National Planning Policy Framework (NPPF) (February 2019). The revised National Planning Policy Framework (NPPF), published in February 2019, sets out the Governments planning policies for England and how these should be applied. The NPPF notes the purpose of the planning system is to contribute to the achievement of sustainable development. The changes to the NPPF are not considered to have a material impact on the Project;
- DfT's Circular 02/2013 Strategic Road Network and the Delivery of Sustainable Development (2013). The DfT Circular 02/2013 'The strategic Road Network and the Delivery of Sustainable Development' was published in September 2013. The document sets out how Highways England (formerly Highways Agency) intends to engage with communities and the development industry to deliver sustainable development and, thus, economic growth, whilst safeguarding the primary function and purpose of the strategic road network. No amendments or updates have been published that would have a material impact on the Project;

- Local Policy

- North Lincolnshire Local Plan 'Preferred Options' (February 2020) – The North Lincolnshire Local Plan will replace the North Lincolnshire Council Core Strategy and the Housing and Employment Land Allocations Development Plan Documents (DPDs) when formally adopted. The Local Plan is at the Preferred Options Stage and the emerging policies are not considered to have a material impact on this NMA application.
- North Lincolnshire Council Core Strategy (2011) - North Lincolnshire Council Core Strategy was adopted in 2011 and provides a blueprint for managing growth and development in the area up to 2026. No amendments or updates have been published that would have a material impact on the project;
- North Lincolnshire Council Preparation and Implementation of Development Travel Plans (2018) - The Interim Construction Worker and Operational Worker Travel Plan would be updated to reflect the latest guidance and best practice as part of the monitoring review process;
- North Lincolnshire Local Transport Plan (2011-2026). The North Lincolnshire LTP sets out the vision and objectives for future development in the area. The LTP 2017-2036 is





currently under consultation but remains unadopted. No amendments to the North Lincolnshire LTP 2011-2026 have been published.

- 2.1.2. In summary it is considered that there have been no material changes to national or local policy that would have a material impact on the Project.

### 3 EXTENT OF STUDY AREA

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- 3.1.1. In pre-application discussions with NLC, NELC, and Highways England it was agreed that the extent of the study area should extend to include the following junctions:
- A180/A160 Interchange (Junction 1)
  - A160 Humber Road/Habrough Road Roundabout (Junction 2)
  - A160 Humber Road/Eastfield Road Junction (Junction 3)
  - A160 Humber Road/A1173 Manby Road Roundabout (Junction 4)
  - A1173/Kings Road Roundabout (Junction 5)
  - A1173/Kiln Lane Roundabout (Junction 6)
  - A180/A1173 Grade Separated (Junction 7)
  - Chase Hill Road/Rosper Road (Junction 8)
  - Chase Hill Road/Eastfield Road (Junction 9)
- 3.1.2. The study area covers all junctions assessed as part of the Order. The changes to the baseline conditions and development trips are considered in the following sections.

## 4 HIGHWAY NETWORK – IMPROVEMENT SCHEMES

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### 4.1 DELIVERED

4.1.1. The following highway improvement schemes have been delivered by Highways England and partners since the Order was consented in 2014:

- Upgrading the A180/160 grade-separated junction to an oval roundabout arrangement;
- A160 Dualled between A180/A160 Interchange and Eastfield Road Junction
- Relocating the A160/Habrough Road roundabout to the west of its current position and upgrading it to a five-arm roundabout with new links provided from the A160 and Ulceby Road;
- New bridge over A160 between Town Street and Woods Lane removing north south movements
- Upgrading the A160/Manby Road roundabout junction to form gyratory roundabout with new links to Humber Road/Rosper Road
- New southern arm on A180/A1173 Stallingborough Interchange

### 4.2 UNDER CONSTRUCTION

4.2.1. The following highway improvement schemes are under construction:

- South Humber Bank Link Road – currently under construction and is anticipated to be completed by February/March 2021.
- Upgrading the existing Chase Hill/ Eastfield Road priority junction to a four-arm roundabout, with a new arm which would provide access to the Able Logistics Park

### 4.3 OTHER COMMITTED HIGHWAY SCHEMES

4.3.1. The following highway improvement schemes were planned as part of the Able Logistics Park and Able Marine Energy Park developments:

- Modifications to the A160 Humber Road/Eastfield Road junction to widen the Eastfield Road (N) arm to provide an extra lane and to extend the existing approach lanes from the A160 eastbound; [Not yet delivered]; and
- As part of the Able Marine Energy Park development, a proposed improvement scheme has been developed for the A1173 /Kiln Lane junction. The proposed scheme includes plans to extend the existing second lane increase stacking capacity on the A1173 western approach [Not yet delivered].

4.3.2. The two highway improvement schemes listed above have not yet been delivered and NLC have advised no detailed designs are available, therefore the works are unlikely to be forthcoming in the near future.

4.3.3. Planning Condition 18 attached to the Able Logistics Park Decision Notice (PA/2009/0600) confirms any off-site within-highway works identified in the Transport Assessment, affecting the local highway network, shall be completed in accordance with details to be submitted to and approved in writing by the local planning authority. NLC have confirmed this condition has been discharged without the scheme being delivered. However, it is secured through the Able Marine Energy Park DCO therefore is still considered to be committed.

4.3.4. It is considered that the highway improvement schemes delivered since the order was granted, those under construction, and those committed will increase capacity available on the network.

## 5 BASELINE TRAFFIC FLOWS

### 5.1 SOURCES OF TRAFFIC DATA

5.1.1. In order to establish the baseline traffic conditions on the local and strategic road network several sources of data were reviewed including:

- Webtris
- Traffic Surveys
- Highways England Traffic forecast Growth Report

5.1.2. In addition, baseline data traffic data from committed developments was used in the analysis of the development impacts. The following sections provide a summary of the analysis of the baseline data.

### 5.2 WEBTRIS

### 5.3 TRAFFIC GROWTH (2011 - 2019)

5.3.1. Table 5-1 contains Average Weekday Traffic (AWT) traffic volume data extracted from Webtris count stations on the A160 for a range of time periods (12hr – 24hr) for data recorded in 2011 and 2019. Table 5-1 indicates there has been between 9.4% and 11.6% growth on the network on an average weekday.

**Table 5-1 - Webtris Traffic Growth (2011 – 2019)**

Year and Count ID	Direction	24hr ADT	18hr ADT	16hr ADT	12hr ADT
2011:7038 & 2019:14418	Westbound	0.115	0.102	0.107	0.108
2011:7039 & 2019:14416	Eastbound	0.081	0.068	0.074	0.054
2011:9608 & 2019:9608	Eastbound	0.152	0.130	0.140	0.119
<b>Network Growth (2011 - 2019)</b>		0.116	0.100	0.107	0.094

### 5.4 AVERAGE WEEKDAY (HOURLY TRAFFIC FLOWS)

Table 5-2, Table 5-3, and Table 5-4 contain hourly traffic volume data extracted from Webtris count stations on the A160 recorded in 2019 during the AM (06:00 – 10:00), PM (16:00 – 20:00), and Inter Peak (10:00 – 16:00) time periods. The data has been filtered to only include data collected during a neutral month (March – November excluding August), school term time excluding the first and last week of term based on NLC/NELC school calendar, and Monday to Thursday.

5.4.1. Table 5-2 indicates the AM Peak Hour is 07:00 – 08:00 as assessed in the Order. It can be also seen that in the hour before and after the AM peak hour the volume of traffic is 22% and 38% lower

respectively indicating there is capacity to utilise demand management measures to mitigate temporary construction traffic impacts.

**Table 5-2 - Webtris AM Period (06:00 – 10:00)**

Link	Direction	ID	ID	Time Period			
				6	7	8	9
A180 to A160	Westbound	14826	9961/1	415	<b>491</b>	478	412
A180 to A161	Eastbound	9608	7072/1	826	<b>1127</b>	567	416
East of J3	Westbound	14418	9959/1	455	<b>497</b>	442	400
East of J3	Eastbound	14416	9958/1	445	<b>648</b>	517	409
<b>TOTAL</b>				2142	<b>2763</b>	2003	1638

5.4.2. Table 5-3 confirms the PM Peak Hour is 16:00 – 17:00 as assessed in the DCO. It can be also seen that in the hour before and after the PM peak hour the volume of traffic is 16% and 7% lower respectively indicating there is capacity to utilise demand management measures to mitigate temporary construction traffic impacts.

**Table 5-3 - Webtris PM Period (16:00 – 20:00)**

Link	Direction	ID	ID	Time Period			
				16	17	18	19
A180 to A160	Westbound	14826	9961/1	<b>602</b>	542	368	194
A180 to A161	Eastbound	9608	7072/1	<b>595</b>	616	424	235
East of J3	Westbound	14418	9959/1	<b>648</b>	562	312	186
East of J3	Eastbound	14416	9958/1	<b>496</b>	464	344	203
<b>TOTAL</b>				<b>2341</b>	2184	1448	819

5.4.3. .

5.4.4. Table 5-4 contains the volume of traffic during the inter peak period. It can be seen that the traffic flows are significantly lower than the AM and PM peak periods indicating there is capacity in the network to utilise demand management measures to mitigate temporary construction traffic impacts during the interpeak period.

**Table 5-4 - Webtris IP Period (10:00 – 16:00)**

Link	Direction	ID	ID	10	Time Period				
					11	12	13	14	15
A180 to A160	Westbound	14826	9961/1	373	362	357	355	393	449
A180 to A161	Eastbound	9608	7072/1	385	398	429	469	506	563
East of J3	Westbound	14418	9959/1	384	383	403	412	431	484
East of J3	Eastbound	14416	9958/1	383	383	408	452	462	478
TOTAL				1525	1526	1597	1688	1792	1974

5.4.5. In summary, the data extracted from Webtris indicates the AM Peak hour is 07:00 – 08:00 and the PM peak hour is 16:00 – 17:00. The data also indicates there is capacity on the shoulders of the peak hour and throughout the day to utilise demand management measures to manage the impacts of the peak activity by concentrating activity away from the AM and PM peak hour.

## 5.5 TRAFFIC SURVEYS

5.5.1. In order to establish the baseline traffic conditions on the local road network classified traffic count surveys were also undertaken to cover the anticipated peak trip generation periods associated with the proposed development. Fully classified turning counts were undertaken at the following junctions:

- A180/A160 Interchange (Junction 1)
- A160 Humber Road/Habrough Road Roundabout (Junction 2)
- A160 Humber Road/Eastfield Road Junction (Junction 3)
- A160 Humber Road/A1173 Manby Road Roundabout (Junction 4)
- A1173/Kings Road Roundabout (Junction 5)
- A1173/Kiln Lane Roundabout (Junction 6)
- A180/A1173 Grade Separated (Junction 7)
- Chase Hill Road/ Rosper Road (Junction 8)

5.5.2. The traffic surveys were undertaken on Wednesday 19<sup>th</sup> June 2019 between 06:00 and 22:00. The traffic flows indicate the network AM peak hour is 06:45 – 07:45, broadly in accordance with the data extracted from Webtris.

5.5.3. The traffic flows also indicate that the network PM hour is 17:00 – 18:00, this is later than indicated by the data extracted from Webtris count stations located on the A160. Further investigation of the traffic surveys indicated that traffic flows remained stable between 16:15 and 18:00 before reducing after 18:00. The difference in total flows across the network during each whole hour within this time period is less than 3.5%.

- 5.5.4. Based on the peak hours associated with the development trips, it is considered reasonable to analyse the 07:00 - 08:00 and 16:00 – 17:00 time periods as per the assessment contained in the Order.

## **5.6 HIGHWAYS ENGLAND TRAFFIC FORECASTING REPORT – A160/A180 PORT OF IMMINGHAM IMPROVEMENTS**

- 5.6.1. The Traffic Forecasting Report prepared for Highways England A160/A180 Port of Immingham Improvement schemes was prepared to assess the economic and environmental impacts of the scheme and concludes that the data was suitable for the preliminary design of the A180/A160 corridor upgrades.
- 5.6.2. The model included a review of the AM Peak (07:00 – 08:00), PM Peak (1600 – 1700, and Inter-Peak (1000 – 1600) periods for the Opening Year of 2016, intermediate year, Design Year of 2031, and final Year of 2041 for the Do Minimum and Do Something networks. A range of forecast scenarios were also considered including Core TEMPRO Scenario, Core Scenario, High Growth, and Low Growth. The Core Scenario was considered the most realistic and included Able development and Port Growth unconstrained by TEMPRO.
- 5.6.3. The traffic forecasts were developed for use in the preliminary and detailed design of the A160/A180 Port of Immingham Improvement scheme therefore it is considered that the highway improvements have allowed for significant growth and development up to 2031, with the longer term forecasts up to 2041 also considered therefore covering development over the next 21 years.
- 5.6.4. The 2031 Do Something - Core Scenario and 2031 Do Something - High Scenario forecast link flows are included at Appendix A for the AM (07:00 – 08:00) and PM (16:00 – 17:00) peak hour as a benchmark for the reviewing the traffic impacts associated with this Project. This is discussed further later in this report.

## 6 PROPOSED DEVELOPMENT

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### 6.1 DEVELOPMENT SCENARIOS

6.1.1. The Traffic and Transport chapter contained in the Environmental Statement (ES) (DCO EN010038-000216-6.1 dated 22nd March 2013) and Core Scenario Transport Assessment (TA) (DCO Reference EN010038-000267 dated 11th November 2013) considered the following development scenarios:

- Scenario A – Construction of Power Island and Common Facilities only
- Scenario B – Operation of Generating Station as Combined Cycle Gas Turbine (CCGT) Plant
- Scenario C – Construction of Power Island with the Gasification Plant and Common Facilities
- Scenario D – Operation of Generating Station as CCGT Plant with subsequent construction of the Gasification Plant
- Scenario E – Operation as an Integrated Gasification Combined Cycle (IGCC) Plant

6.1.2. It was agreed at the time with NLC, NELC and Highways England that operational assessments of the construction scenarios (A, C, and D). The operational scenarios (B and E) were considered to have a negligible traffic impact and therefore no further junction analysis of these scenarios was undertaken. The signed Statement of Common Ground confirmed this position was circulated to all parties 20<sup>th</sup> May 2020 on has been agreed during pre-application discussions.

### 6.2 CONSTRUCTION PROGRAMME AND ASSESSMENT YEARS

6.2.1. It is anticipated construction could commence on site as early as Q1 2022 and based on the construction programme this would result in the construction peaks occurring in 2023 and 2026. However, it is recognised that a five-year extension would allow the Applicant to commence works up to 2026. As such it is proposed to assess a start date of in the middle of this time period i.e. 2023/24. This would result in peak construction years of 2025 and 2028 respectively based on the programme of works described below:

- Scenario A – Construction of Power Island and Common Facilities only. The construction period for this scenario is approximately 26 months, with peak construction activity taking place 18 months into the programme. Assuming a start date during 2023 the peak of construction would be in 2025.
- Scenario C – Construction of Power Island with the Gasification Plant and Common Facilities. The construction period for this scenario is approximately 36 months, with peak construction activity taking place 24 months into the programme. Assuming a start date during 2023 the peak of construction would be in 2025.
- Scenario D – Operation of Generating Station as CCGT Plant with subsequent construction of the Gasification Plant. The construction period for this scenario is in two phases. The first phase commences in 2023 as set out in Scenario A and the second phase 2027 with the peak of construction 12 months later during 2028.

6.2.2. In addition, to an assessment of the development impacts in 2025 and 2028 in line with the scenarios set out above and the indicative construction programme. It is considered that the above assessment years represents a robust scenario for progressing discussions on the impacts of the extension of time to the Order and has been agreed with NLC, NELC, and Highways England.



## 6.3 CONSTRUCTION WORKERS – SHIFT PATTERN

6.3.1. During construction, it is expected that there would be between 600 and 1600 construction workers on site. In accordance with the Order it has been assumed that all employees would arrive on site between 06:00 and 10:00 and depart the site between 16:00 and 20:00. Table 6-1 contains the distribution of construction worker traffic across the peak hour periods.

**Table 6-1 - Distribution of Construction Worker Traffic across Peak Hour Periods**

Time Period	DCO Peak Hour		NMA Application (Alternative)	
	Arrivals (AM)*	Departures (PM)	Arrivals (AM)*	Departures (PM)
06:00 – 07:00	21%	-	59%	-
<b>07:00 – 08:00</b>	<b>38%</b>	-	<b>24%</b>	-
08:00 – 09:00	24%	-	16%	-
09:00 – 10:00	16%	-	-	-
15:00 – 16:00	-	-	-	37%
<b>16:00 – 17:00</b>	-	<b>37%</b>	-	<b>33%</b>
<b>17:00 – 18:00</b>	-	<b>33%</b>	-	<b>20%</b>
18:00 – 19:00	-	20%	-	10%
19:00 – 20:00	-	10%	-	-

\*rounding error in original DCO table

6.3.2. Table 6-1 also contains an alternative arrival/departure profile based on offsetting the construction workers start/finish time within the construction working hours (07:00 – 19:00 Monday to Saturday) to reduce the developments impacts in the AM and PM peak hours.

6.3.3. The alternative proportions show the distribution of trips in the AM brought forward by 1 hour but adjusted so the earliest arrival takes place between 06:00 – 07:00 in line with the construction working hours. In the PM peak the distribution has been brought forward by one hour with no adjustment. It is considered that alternative working hours could be used to minimise the impacts of the development at the peak of construction and encourage peak spreading.

## 6.4 PREDICTED TRIP GENERATION, DISTRIBUTION, AND ASSIGNMENT

6.4.1. The ES and TA submitted with the Order considered the vehicle trip generation associated with each of the development scenarios. The parameters used to derive the number of vehicle trips associated with each development scenario comprised the following:

- Number of construction workers;
- Number of operational workers;
- Number of HGVs; and
- Number of LGVs.

6.4.2. A summary of the three construction related development scenarios (A, C, D) and their respective daily trip generations are outlined below:

- Scenario A – (Construction of Power Island and Common Facilities only) will generate the lowest number of construction worker trips at 600, no operational staff trips, 150 HGVs and 35 LGVs.
- Scenario C – (Construction of Power Island with the Gasification Plant and Common Facilities) anticipated to generate the highest number of construction worker trips at 1,600 which was anticipated to generate 500 HGVs, 120 LGVs and no operational staff trips.
- Scenario D – (Operation of Generating Station as CCGT Plant with subsequent construction of the Gasification Plant) anticipated to generate 1,000 construction worker trips, 35 operational staff trips, 250 HGVs and 85 LGVs.

6.4.3. The vehicle trip generation agreed as part of the Order remains the same in the NMA application. Table 6-2 contains the trip generation for each of the three construction scenarios for the AM and PM peak hour. The trip generation is based on the number of construction workers, operational staff, HGVs and LGVs.

**Table 6-2 - AM and PM Peak Hour Predicted Vehicular Trip Generation (Scenarios)**

Trip Generation		Scenario:	A & D 2025	C 2025	D 2028
AM Peak	Arrive	Cars - Construction Workers	114	304	190
		Cars- Operational Staff	0	0	4
		HGVs	13	42	29
		LGVs	3	10	7
		Total	131	356	230
	Depart	Cars - Construction Workers:	0	0	0
		Cars - Operational Staff	0	0	4
		HGVs	0	0	0
		LGVs	0	0	0
		Total	0	0	4

Trip Generation		Scenario:	A & D 2025	C 2025	D 2028
PM Peak	Arrive	Cars - Construction Workers:	0	0	0
		Cars - Operational Staff	0	0	4
		HGVs	13	42	29
		LGVs	3	10	7
		Total	15	52	40
	Depart	Cars - Construction Workers:	111	296	185
		Cars - Operational Staff	0	0	4
		HGVs	13	42	29
		LGVs	3	10	7
		Total	126	349	225

## 6.5 TEMPRO GROWTH FACTORS

6.5.1. TEMPRO growth factors have been derived based on the National Trip End Model (NTEM) 7.2 dataset and the National Transport Model (NTM) Dataset AF15. The 'urban - all roads' for North Lincolnshire 004 and North East Lincolnshire 001 area have been considered are shown in Table 6-3 and Table 6-4 for each of the assessment years.

**Table 6-3 - Growth Factors (2019 - 2025)**

Base Year	Future Year	Time Period	Level	Area	Local Growth Figure	Area Type	Road Type
2019	2025	Weekday AM Peak Period (0700 - 0959)	E02002726	North East Lincolnshire 001	1.099	Urban	All
2019	2025	Weekday AM Peak Period (0700 - 0959)	E02002752	North Lincolnshire 004	1.101	Urban	All
2019	2025	Weekday PM Peak Period (1600 - 1859)	E02002726	North East Lincolnshire 001	1.097	Urban	All
2019	2025	Weekday PM Peak Period (1600 - 1859)	E02002752	North Lincolnshire 004	1.098	Urban	All

**Table 6-4 - Growth Factors (2019 – 2028)**

Base Year	Future Year	Time Period	Level	Area	Local Growth Figure	Area Type	Road Type
2019	2028	Weekday AM Peak Period (0700 - 0959)	E02002726	North East Lincolnshire 001	1.128	Urban	All
2019	2028	Weekday AM Peak Period (0700 - 0959)	E02002752	North Lincolnshire 004	1.132	Urban	All
2019	2028	Weekday PM Peak Period (1600 - 1859)	E02002726	North East Lincolnshire 001	1.125	Urban	All
2019	2028	Weekday PM Peak Period (1600 - 1859)	E02002752	North Lincolnshire 004	1.129	Urban	All

6.5.2. Table 6-3 and Table 6-4 indicate the growth factor for North Lincolnshire 001 is marginally higher for all assessment years and therefore this has been applied across the study area. The 2019 traffic flows have been factored to the peak construction year of 2025 and 2028. The traffic flow diagrams are provided at Appendix B.

## 6.6 COMMITTED DEVELOPMENT

- 6.6.1. A review of committed development has been undertaken and is included at Appendix C. This builds on the assessment included in the original Scoping Note with the addition of the developments requested by North East Lincolnshire Council on 15<sup>th</sup> April 2020.
- 6.6.2. The total committed traffic flows are shown in Appendix B alongside the Base plus Committed Scenarios. It should be noted the South Humber Link Road is included separately as we have only been able to source traffic flows in PCU's. The South Humber Link Road brings significant benefits to the eastern part of the study area with reduced traffic flows between the A180/A1173 Stallingborough (J7) Interchange and A1173 Kiln Lane roundabout (J6), offsetting a large of proportion of the increase in trips associated with committed development.

## 7 TRAFFIC IMPACT ASSESSMENT

### 7.1 JUNCTIONS

#### AM PEAK (0700 - 0800)

7.1.1. Appendix B contains the predicted traffic assignment associated with the Project in the AM and PM peak hours for all scenarios. Table 7-1 summarises the total volume of traffic (Vehicles) through each of the junctions within the study area during the AM peak hour.

**Table 7-1 - Total Volume of Traffic by Junction (Vehicles)**

Scenario	Time Period	J1	J2	J3	J4	J5	J6	J7	Total
2019 Surveyed	AM (07:00 - 08:00)	1761	2237	2169	1574	1078	1669	1957	12445
2025 Base	AM (07:00 - 08:00)	1939	2463	2388	1733	1187	1838	2155	13702
2028 Base	AM (07:00 - 08:00)	1993	2532	2455	1782	1220	1889	2215	14088
2025 Base + Committed	AM (07:00 - 08:00)	2225	2749	2687	1891	1355	2293	2787	15986
2028 Base + Committed	AM (07:00 - 08:00)	2279	2818	2754	1940	1388	2344	2847	16372
2025 Scenario A	AM (07:00 - 08:00)	2316	2840	2778	1944	1395	2333	2827	16432
2025 Scenario C	AM (07:00 - 08:00)	2477	3001	2939	2040	1462	2400	2894	17212
2028 Scenario D	AM (07:00 - 08:00)	2446	2985	2921	2038	1457	2413	2916	17178

7.1.2. Appendix B contains the predicted traffic assignment associated with the Project in the AM and PM peak hours for all scenarios. Table 7-2 summarises the predicted increase at each of the junctions within the study area for the PM peak hour.

**Table 7-2 - Development Flows as Percentage of Total Volume of Traffic**

Scenario	Time Period	J1	J2	J3	J4	J5	J6	J7
2025 Scenario A	AM (07:00 – 08:00)	4%	3%	3%	3%	3%	2%	1%
2025 Scenario C	AM (07:00 – 08:00)	10%	8%	9%	7%	7%	4%	4%
2028 Scenario D	AM (07:00 – 08:00)	7%	6%	6%	5%	5%	3%	2%

7.1.3. Table 7-2 confirms the construction traffic equates to between 2% and 10% of the predicted traffic through the junctions within the study area. It is considered that this is within the daily variation of the junctions and could also be managed through demand management measures contained in the embedded mitigation.

## PM PEAK (1600 – 1700)

7.1.4. Appendix B contains the predicted traffic assignment associated with the Project in the AM and PM peak hours for all scenarios. Table 7-3 summarises the total volume of traffic (Vehicles) through each of the junctions within the study area during the PM peak hour.

**Table 7-3 - Total Volume of Traffic by Junction (Vehicles)**

Scenario	Time Period	J1	J2	J3	J4	J5	J6	J7	Total
2019 Surveyed	PM (16:00 - 17:00)	1448	1967	1782	1480	1147	1571	1841	11236
2025 Base	PM (16:00 - 17:00)	1590	2160	1957	1625	1259	1725	2021	12337
2028 Base	PM (16:00 - 17:00)	1635	2221	2012	1671	1295	1774	2078	12685
2025 Base + Committed	PM (16:00 - 17:00)	1675	2229	2034	1697	1342	2122	2624	13723
2028 Base + Committed	PM (16:00 - 17:00)	1720	2290	2089	1743	1378	2171	2681	14071
2025 Scenario A	PM (16:00 - 17:00)	1777	2331	2123	1763	1382	2162	2664	14202
2025 Scenario C	PM (16:00 - 17:00)	1962	2516	2321	1888	1449	2229	2731	15096
2028 Scenario D	PM (16:00 - 17:00)	1916	2486	2248	1841	1447	2240	2750	14927

7.1.5. Appendix B contains the predicted traffic assignment associated with the Project in the AM and PM peak hours for all scenarios. Table 7-4 summarises the predicted increase at each of the junctions within the study area for the PM peak hour.

**Table 7-4 - Development Flows as Percentage of Total Volume of Traffic**

Scenario	Time Period	J1	J2	J3	J4	J5	J6	J7
2025 Scenario A	PM (16:00 - 17:00)	6%	4%	4%	4%	3%	2%	2%
2025 Scenario C	PM (16:00 - 17:00)	15%	11%	12%	10%	7%	5%	4%
2028 Scenario D	PM (16:00 - 17:00)	10%	8%	7%	5%	5%	3%	3%

7.1.6. Table 7-4 confirms the construction traffic equates to between 3% and 15% of the predicted traffic through the junctions within the study area. It is considered that although greater than the daily variation in traffic on Junctions 1 - 3 it is considered that the temporary nature of the impacts are not severe given the increased capacity since the granting of the Order.

## 7.2 LINK FLOWS

7.2.1. In addition to an assessment of the developments impacts at junctions within the study area an analysis of the predicted link flows has also been undertaken in order to compare the traffic flows with those previously assessed in the Order and those used in the preliminary and detailed design of the A160/A180 Port of Immingham Improvements. Appendix D contains an overview of the following links within the study area:

- Link 1a/1b – A180 (North of J1)

- Link 2a/1b – A180 (J1 to J7)
- Link 3a/1b – A180 (South of J7)
- Link 4a/1b – A160 (J1 to J2)
- Link 5a/1b – Ulceby Road (North west of J2)
- Link 6a/1b – East Halton Road (North of J2)
- Link 7a/1b – A160 Humber Road (J2 to J3)
- Link 8a/1b – Habrough Road (South of J2)
- Link 9a/1b – Eastfield Road (North of J3)
- Link 10a/1b – A160 Humber Road (J3 to J4)
- Link 11a/1b – Eastfield Road (South of J3)
- Link 12a/1b – Humber Road/Rosper Road (North East of J4)
- Link 13a/1b – A1173 Manby Road (J4 to J5)
- Link 14a/1b – Kings Road (east of J5)
- Link 15a/1b – A1173 (J5 to J6)
- Link 16a/1b – Kiln Lane (East of J6)
- Link 17a/1b – Private Access (South of J6)
- Link 18/1b – A1173 (J6 to J7)
- Link 19a/1b – A1173 (West of J7)

- 7.2.2. Appendix E contains the predicted link flows during the AM and PM peak hours for all scenarios and a comparison with the previous assessment included in the Highways England Traffic Forecast Growth Report for both the core and high growth scenarios.
- 7.2.3. The comparison indicates that the link flows are between 22% and 31% higher for the corresponding scenario assessed as part of the original consent i.e. 2016/2025 and 2019/2028. This level of change appears reasonable given the length of time between the assessment years and increased capacity within the study area.
- 7.2.4. A comparison has also been undertaken comparing the predicted traffic flows to Highways England Traffic Forecast Growth Report. This indicates the overall network flows are lower in 2025 and 2028 compared to the growth outlined in the forecasting report used to design the upgrades, therefore, it is considered that the temporary impacts associated with the Project fall within the design parameters of the upgrade.
- 7.2.5. On the wider network, the traffic flows show an increase on the A1173 Kiln Lane between J6 and J7. However, the South Humber Link Road which is not included in the total committed development flows due to suitable data being unavailable, is predicted to reduce the number of trips on this link (18a/18b) by approx. 519 PCU's in the AM peak hour and 426 PCU's in the PM peak hour. It is understood this road is under construction and is part of the strategic plan for growth in this area.

## 7.3 SUMMARY

- 7.3.1. The assessment has indicated that the temporary increase in traffic flows associated with the peak construction year will be a maximum of 15% of the total volume of traffic through any one junction during the peak of construction.
- 7.3.2. The assessment also indicated that the predicted link flows with the temporary increase in trips during the peak construction year would be comparable to that predicted by the Highways England Traffic Forecast Growth Report.



7.3.3. It is considered that this increase in the context of the temporary nature of the traffic impact, and the anticipated longer-term growth on the network as indicated by the Highways England Traffic Forecast Growth Report, is acceptable and this has been agreed in principle with NLC, NELC, and Highways England.



## 8 TRAFFIC IMPACT - MITIGATION

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### 8.1 2014 DCO – APPROVED MITIGATION

- 8.1.1. The Order included details of how the elements of the authorised development to be constructed would be governed by the following documents:
- (i) the CEMP;
  - (ii) a travel plan for construction workers and a travel plan for operational workers which has been submitted to and approved by the relevant planning authority;
  - (iii) a management plan for construction traffic addressing construction traffic, HGV movements and abnormal loads which has been submitted to and approved by the relevant planning authority; and
  - (iv) a management plan for operational transport which has been submitted to and approved by the relevant planning authority;
- 8.1.2. The controls represented by these documents remains valid and it is proposed they will be updated to reflect latest best practice and local conditions prior to construction beginning. It is considered there is sufficient flexibility to amend the above documents and respond to the changes in the baseline conditions and construction programme. This approach has been agreed with NLC, NELC and Highway England.

### 8.2 2020 NMA – UPDATED MITIGATION

- 8.2.1. It is considered that the approved mitigation could be updated to include the following:
- Route Choice (Workers) - agreements for staff currently all employee trips turn left at Eastfield - use information to encourage split between routes East Halton Road / Humber Road / Eastfield Road
  - Offset Shift patterns (Workers) – The trip generation is based on the total number of trips proportioned by total volume of traffic on the road network between 06:00 – 10:00 and 16:00 – 20:00, with the peak coinciding with the network peak hour. It is considered that trips could be offset so staff arrive and depart before or after the AM and PM peak hour as discussed earlier in this report.
  - Construction Vehicles – Import of construction materials and export of waste material. Greater emphasis could be placed on encouraging trips in the inter peak period when traffic volumes are significantly lower. This would include the use of laydown areas within the Project site.
  - Sustainable Travel Measures - Implementation of sustainable measures to reduce the number of vehicle trips, this could include a range of initiatives and could be monitored.
- 8.2.2. Any other measures considered reasonable and proportionate to the traffic impacts associated with the peak construction year would be considered by the Applicant at the time of updating the embedded mitigation.
- 8.2.3. It has been agreed with NLC, NELC, and Highways England that these documents can be updated with specific details of the mitigation measures taken forward prior to the commencement of construction and a contractor has been appointed.

## 9 SUMMARY AND CONCLUSION

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### 9.1 SUMMARY

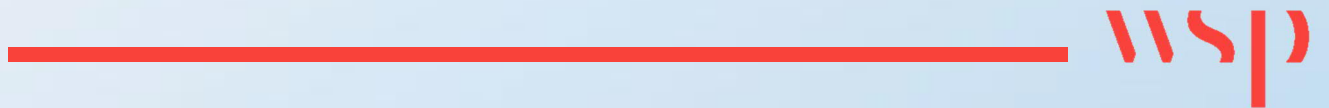
- 9.1.1. This Transport Statement has been prepared following pre-application discussions with North Lincolnshire Council (NLC), North East Lincolnshire Council (NELC) and Highways England in relation to the proposed amendments to C.GEN Killingholme Limited's (C.GEN) consented Nationally Significant Infrastructure Project (NSIP) for the construction a new 470MWe thermal generating station at North Killingholme, North Lincolnshire.
- 9.1.2. The proposed amendments to the Project will have no impact on the vehicle trips generated by the Project, but the peak construction year will be delayed from 2016/2019 to 2025/28. This note has considered the impacts of this delay in the construction programme and reviewed the baseline traffic conditions using a variety of traffic sources.
- 9.1.3. The assessment has indicated that the temporary increase in traffic flows associated with the peak construction year will be a maximum of 15% of the total volume of traffic through any one junction. It is considered that this increase in the context of the temporary nature of the traffic impact, and the anticipated longer-term growth on the network as indicated by the Highways England Traffic Forecast Growth Report, is acceptable and has been agreed with NLC, NELC, and Highways England.
- 9.1.4. Furthermore, it is considered that the embedded mitigation can be updated with additional measures/monitoring to satisfy the highway authorities that the impacts could be managed to acceptable levels. It is anticipated this will include demand management measures to reduce the impact during the peak hours by utilising the available highway capacity on the shoulder of the peak hour, particularly during the AM peak hour.
- 9.1.5. As agreed with highway officers of NLC, NELC and Highways England it is considered proportionate and reasonable to rely on the embedded mitigation and subsequent updates.

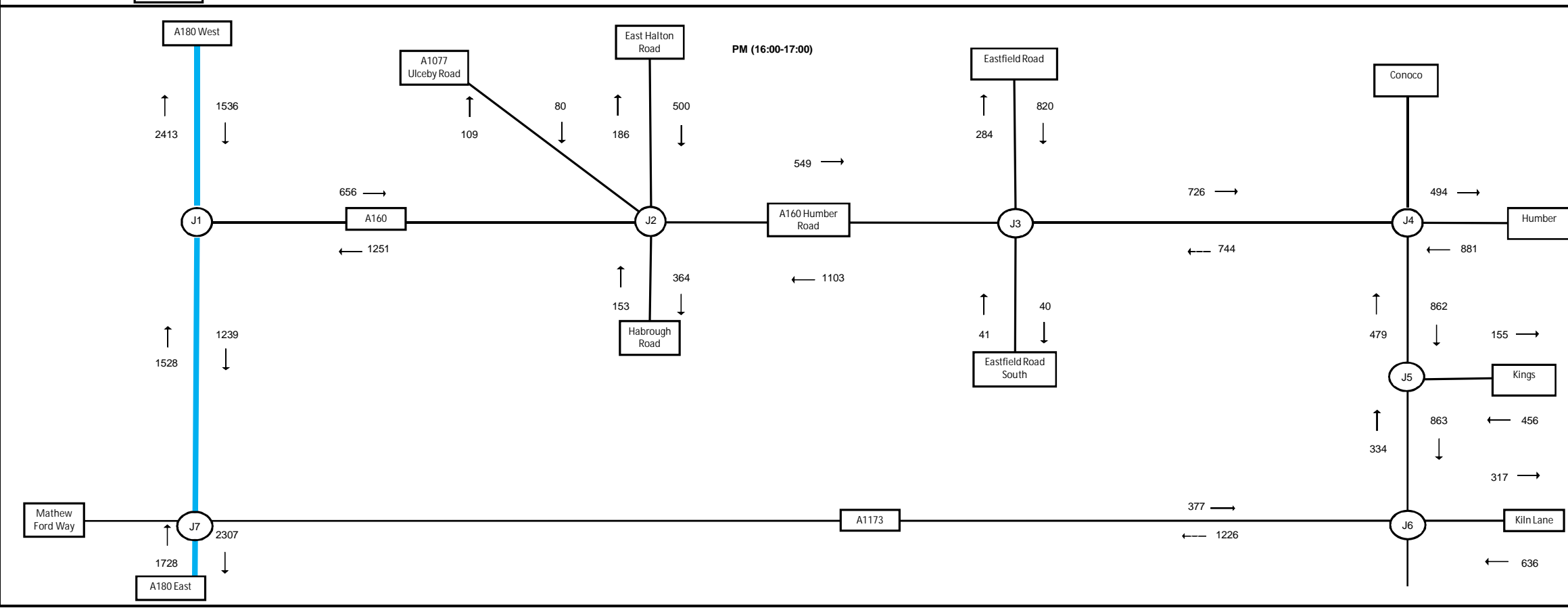
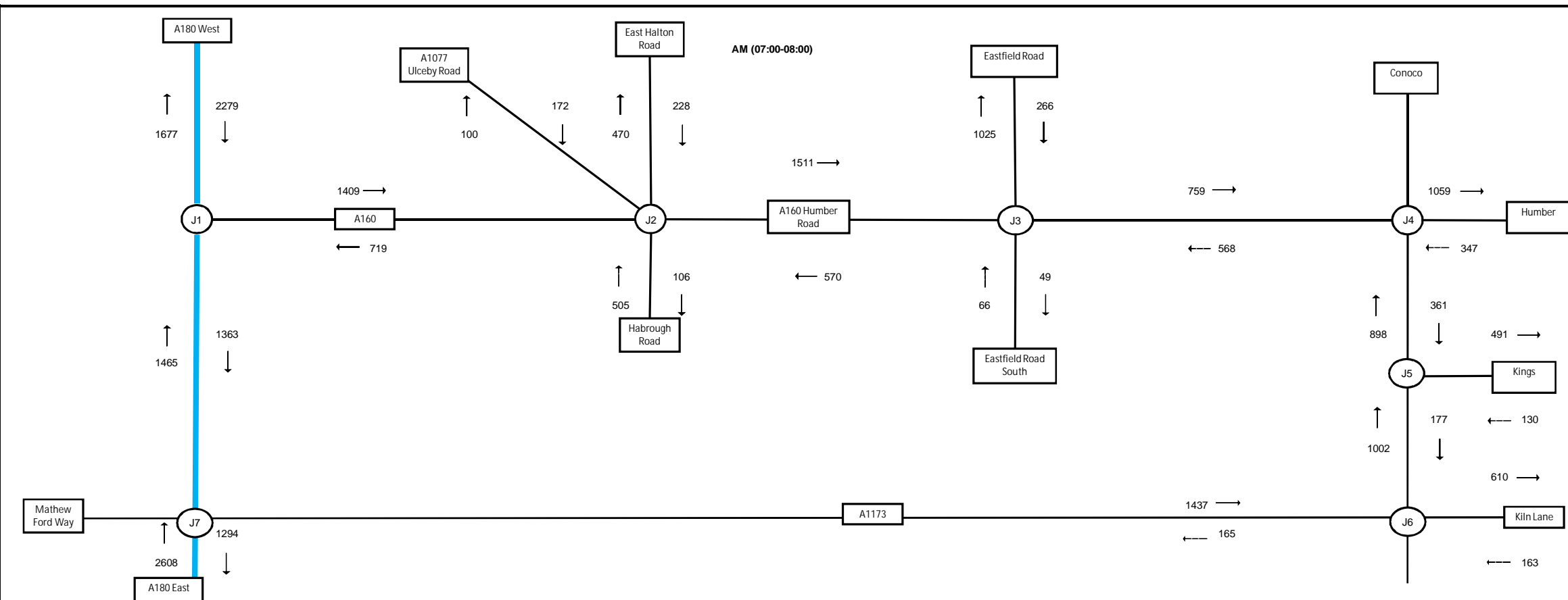
### 9.2 CONCLUSION

- 9.2.1. In conclusion, it is acknowledged that the baseline scenario has changed since the Order was granted, however, given the increased highway capacity, the temporary nature of the construction traffic flows, it is considered that the NMA application to extend the period of time to implement the DCO would not result in a severe impact to the operation of the highway network and the environmental impacts would not be materially different to those in the consented Order.

# Appendix A

TRAFFIC FORECASTING REPORT –  
TRAFFIC FLOW DIAGRAMS





**NOTES**


Link	AM	PM	Link	AM	PM	Link	AM	PM
1a	1677	2413	8b	106	364	16a	610	317
1b	2279	1536	9a	1025	284	16b	163	636
2a	1465	1528	9b	266	820	17a	-	-
2b	1363	1239	10a	759	726	17b	-	-
3a	2608	1728	10b	568	744	18a	1437	377
3b	1294	2307	11a	66	41	18b	165	1226
4a	1409	656	11b	49	40	19a	0	0
4b	719	1251	12a	1059	494	19b	0	0
5a	100	109	12b	347	881			
5b	172	80	13a	361	862			
6a	470	186	13b	898	479			
6b	228	500	14a	491	155			
7a	1511	549	14b	130	456			
7b	570	1103	15a	1002	334			
8a	505	153	15b	177	863			

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C. GEN

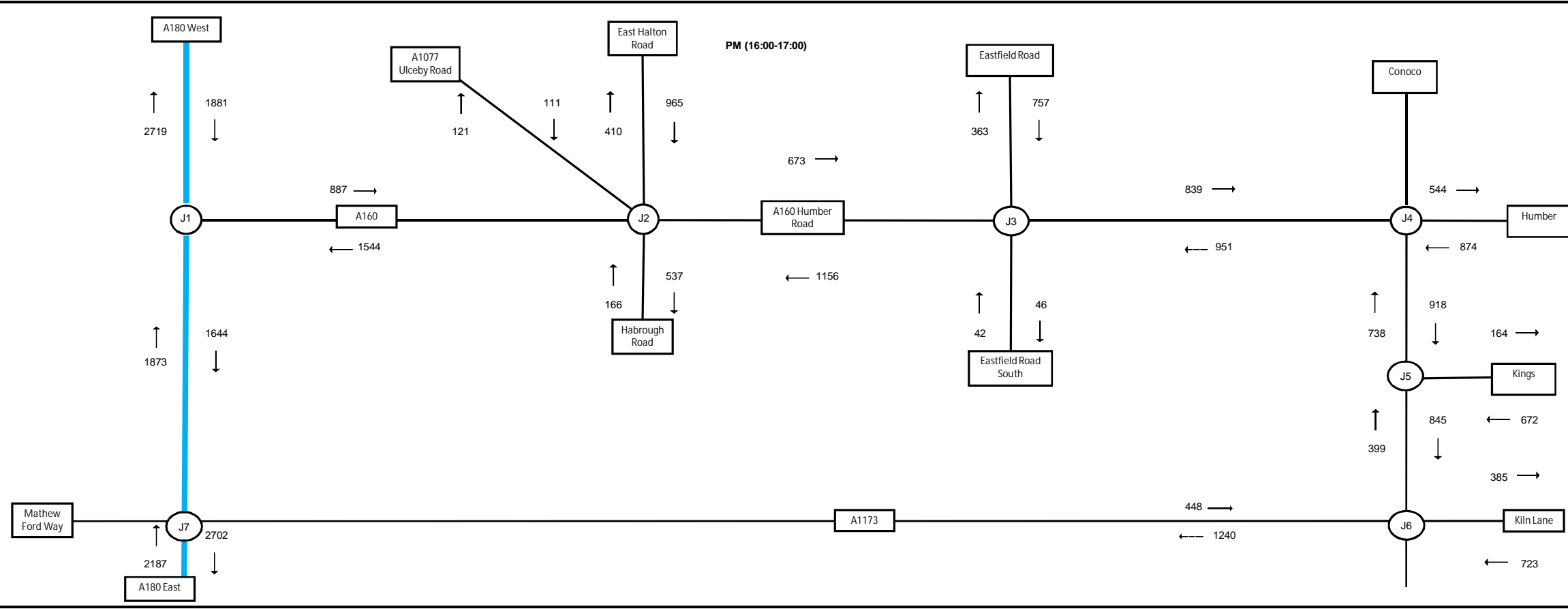
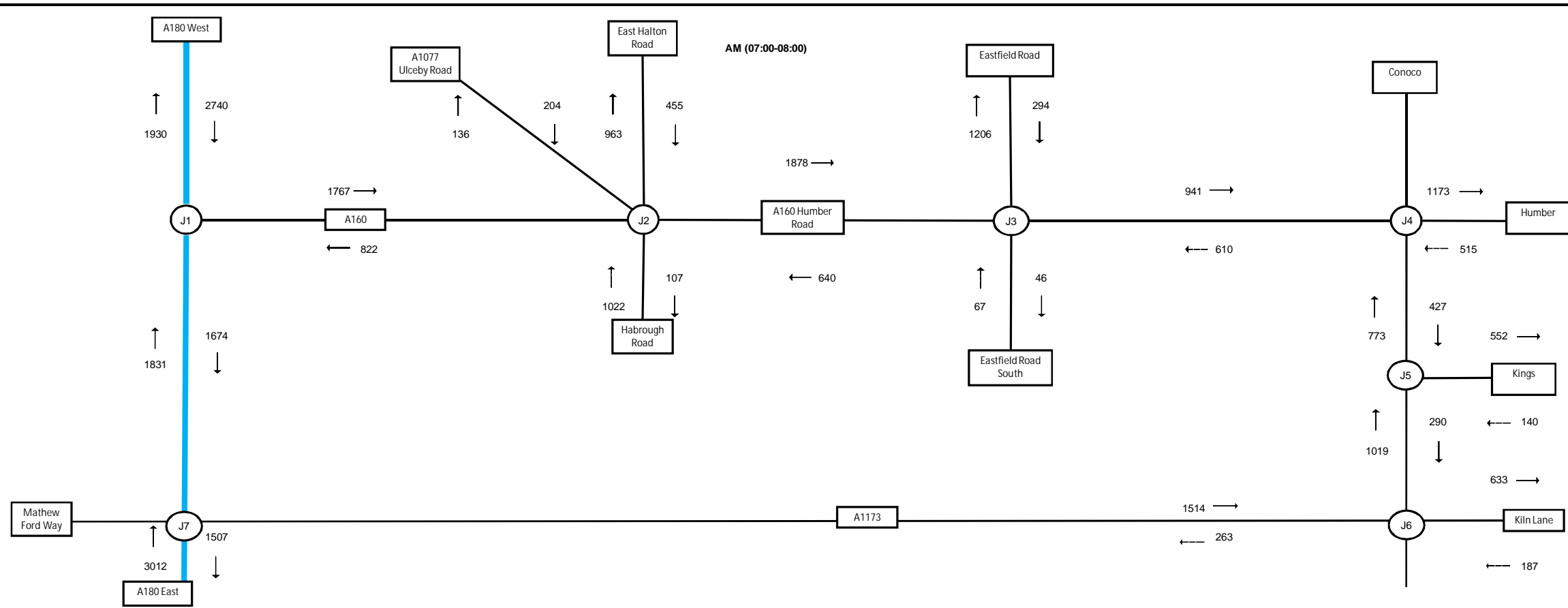
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North Killingholme  
North Killingholme, Lincolnshire

**DRAWING TITLE**  
Highways England Traffic Forecast Report  
2031 Do Something Core Scenario

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<b>DRAWN BY</b> AS	<b>CHECKED BY</b> PW
<b>APPROVED BY</b> AS	



**DATA FILE**  
0001.12 North Killingholme Traffic Flows.xlsx



**NOTES**


Link	AM	PM	Link	AM	PM	Link	AM	PM
1a	1930	2719	8b	107	537	16a	633	385
1b	2740	1881	9a	1206	363	16b	187	723
2a	1831	1873	9b	294	757	17a	-	-
2b	1674	1644	10a	941	839	17b	-	-
3a	3012	2187	10b	610	951	18a	1514	448
3b	1507	2702	11a	67	42	18b	263	1240
4a	1767	887	11b	46	46	19a	0	0
4b	822	1544	12a	1173	544	19b	0	0
5a	136	121	12b	515	874			
5b	204	111	13a	427	918			
6a	963	410	13b	773	738			
6b	455	965	14a	552	164			
7a	1878	673	14b	140	672			
7b	640	1156	15a	1019	399			
8a	1022	166	15b	290	845			

**CLIENT**  
C. GEN

**PROJECT**  
North Killingholme  
North Killingholme, Lincolnshire

**DRAWING TITLE**  
Highways England Traffic Forecast Report  
2031 Do Something High Scenario

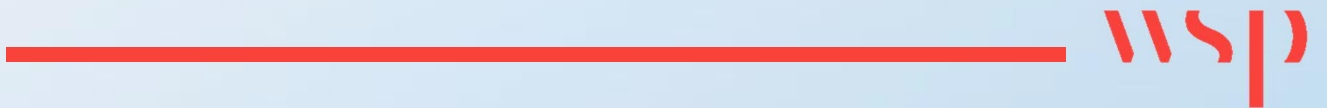
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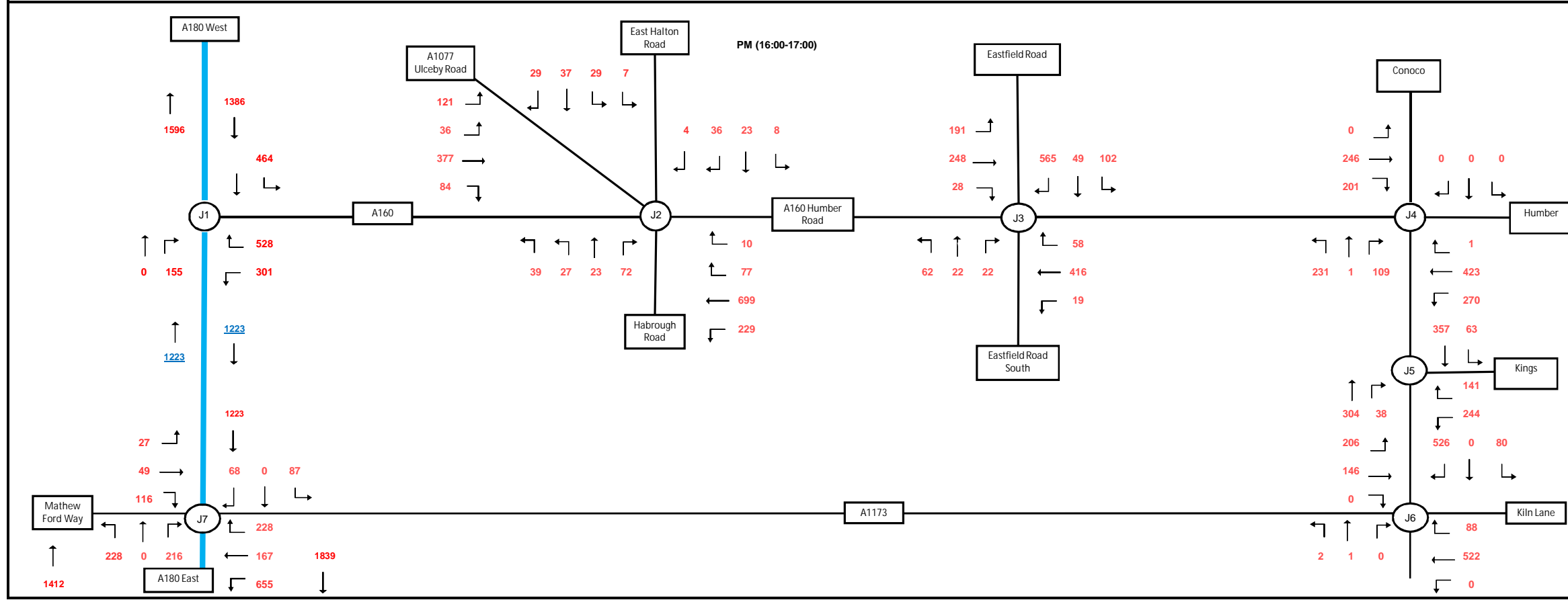
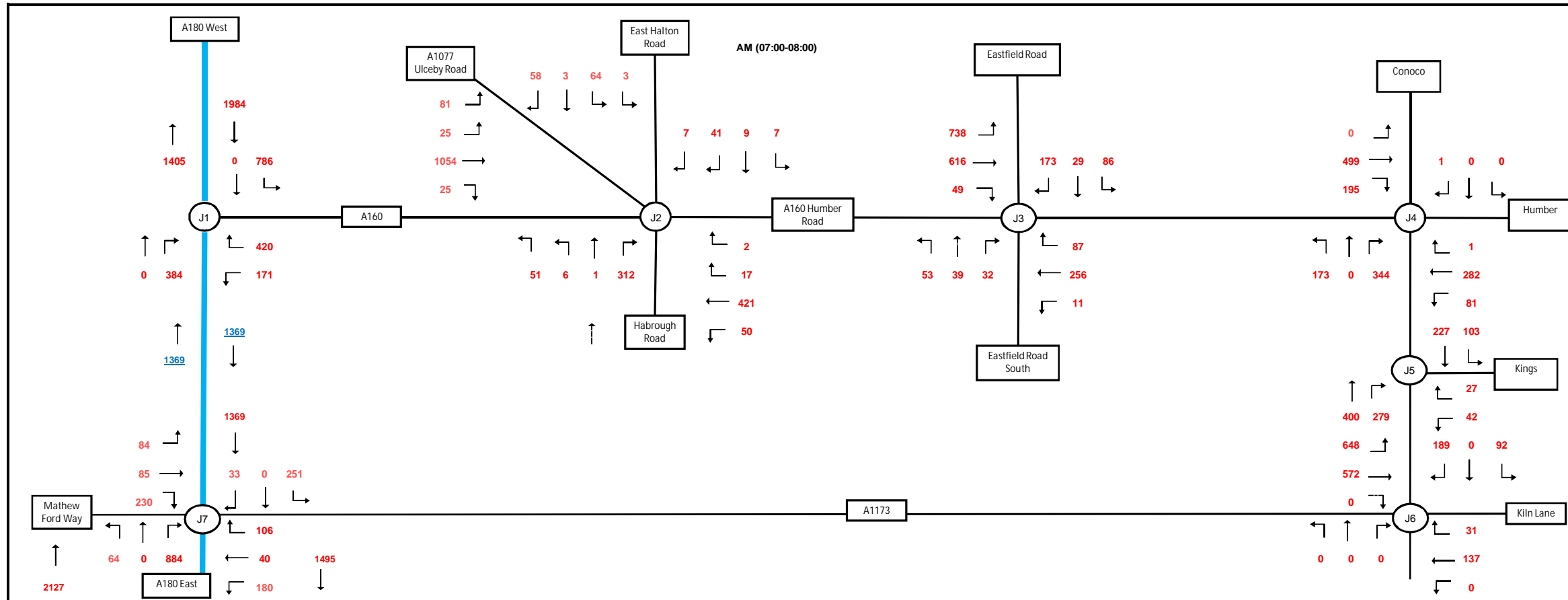


**DATA FILE**  
0001.12 North Killingholme Traffic Flows.xlsx

# Appendix B

2020 NMA APPLICATION - TRAFFIC  
FLOW DIAGRAMS





**NOTES**  
 The flows are obtained from the Manual Turning Count surveys undertaken by MHC Traffic on Wednesday 19th June 2019.  
 No A180 mainline flows were recorded therefore used Webtris Data


Link	AM	PM	Link	AM	PM	Link	AM	PM
1a	1405	1596	8b	87	373	16a	664	226
1b	1984	1386	9a	864	271	16b	168	610
2a	1369	1223	9b	288	716	17a	0	3
2b	1369	1223	10a	714	410	17b	0	0
3a	2127	1412	10b	405	574	18a	1220	328
3b	1495	1839	11a	124	106	18b	326	1050
4a	1178	619	11b	89	96	19a	399	137
4b	581	816	12a	843	355	19b	192	463
5a	111	115	12b	364	694			
5b	128	102	13a	303	446			
6a	31	76	13b	472	393			
6b	64	71	14a	382	101			
7a	1420	477	14b	69	385			
7b	486	1029	15a	679	319			
8a	370	161	15b	275	604			

**CLIENT**  
C. GEN

**PROJECT**  
North Killingholme  
North Killingholme, Lincolnshire

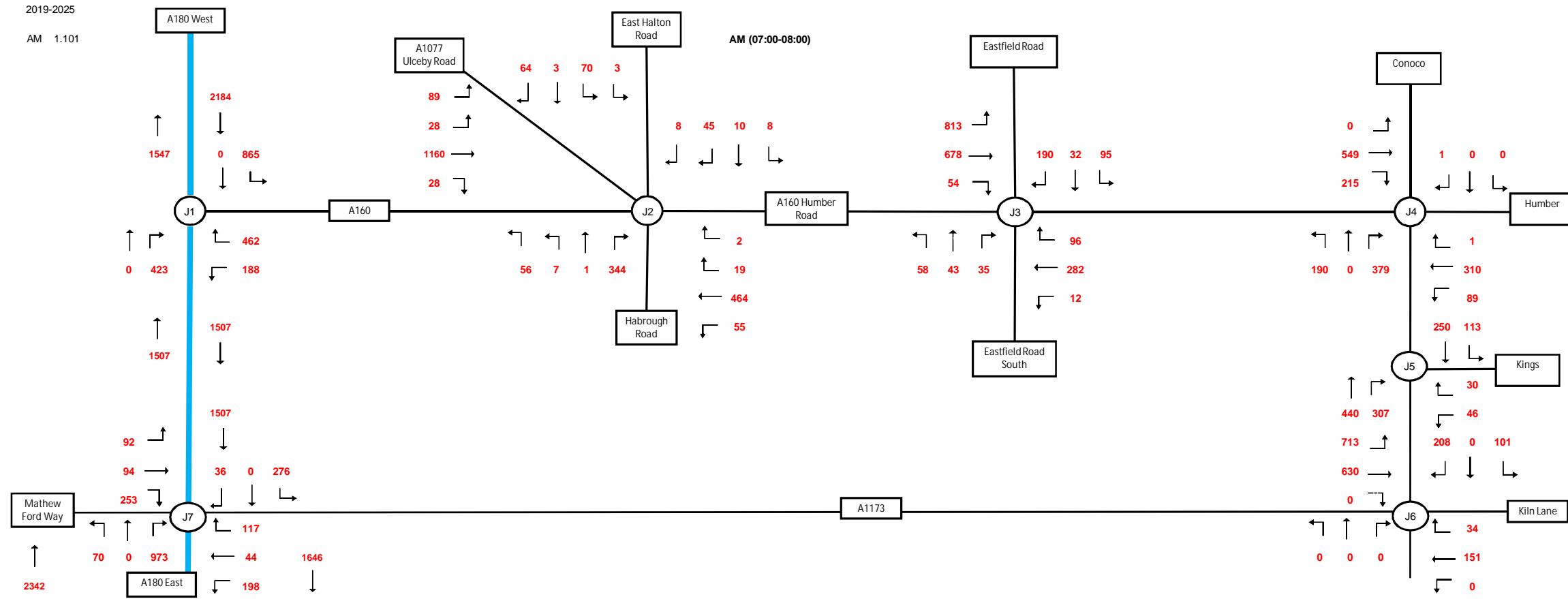
**DRAWING TITLE**  
2019 Surveyed Traffic Flows

<b>DWG REF</b> 2019 Surveyed	<b>DATE</b> 14 June 2020	
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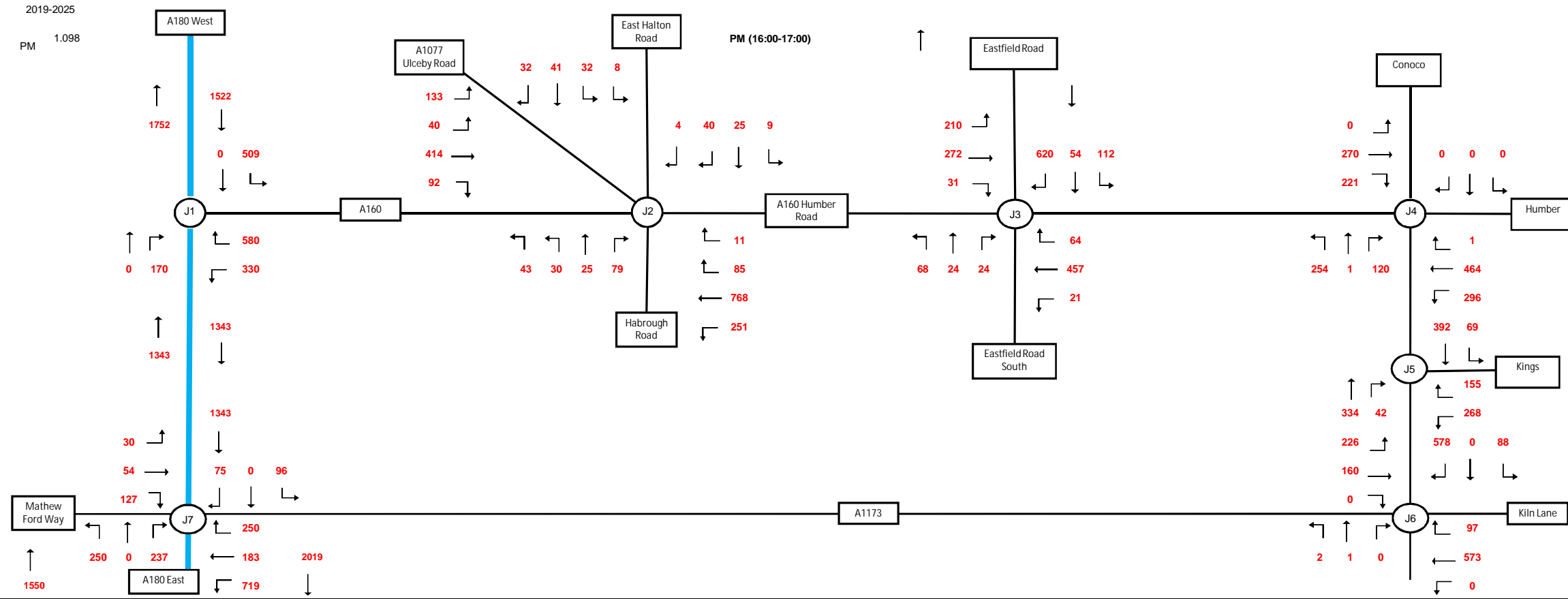
2019-2025  
AM 1.101



NOTES

Link	AM	PM	Link	AM	PM	Link	AM	PM
1a	1547	1752	8b	96	410	16a	731	248
1b	2184	1522	9a	951	298	16b	185	670
2a	1507	1343	9b	317	786	17a	0	3.29
2b	1507	1343	10a	786	450	17b	0	0
3a	2342	1550	10b	446	630	18a	1343	360
3b	1646	2019	11a	137	116	18b	359	1153
4a	1296	679	11b	98	105	19a	439	151
4b	640	896	12a	928	390	19b	211	508
5a	122	126	12b	401	762			
5b	141	112	13a	334	489			
6a	34.1	83	13b	520	432			
6b	70.5	78	14a	421	111			
7a	1563	523	14b	76	423			
7b	535	1130	15a	748	350			
8a	407	177	15b	303	663			

2019-2025  
PM 1.098



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C. GEN

PROJECT

North Killingholme  
North Killingholme, Lincolnshire

DRAWING TITLE

2025 Base

DWG REF

2025 Base

DATE

14 June 2020

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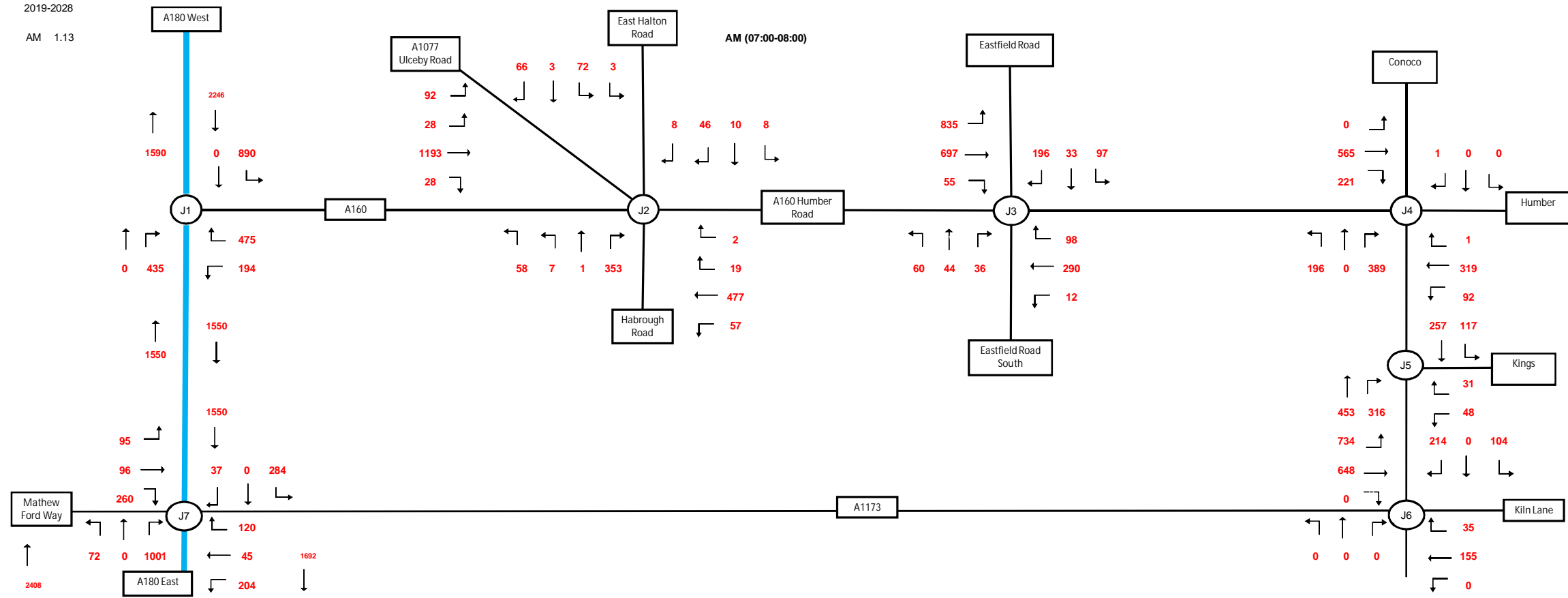


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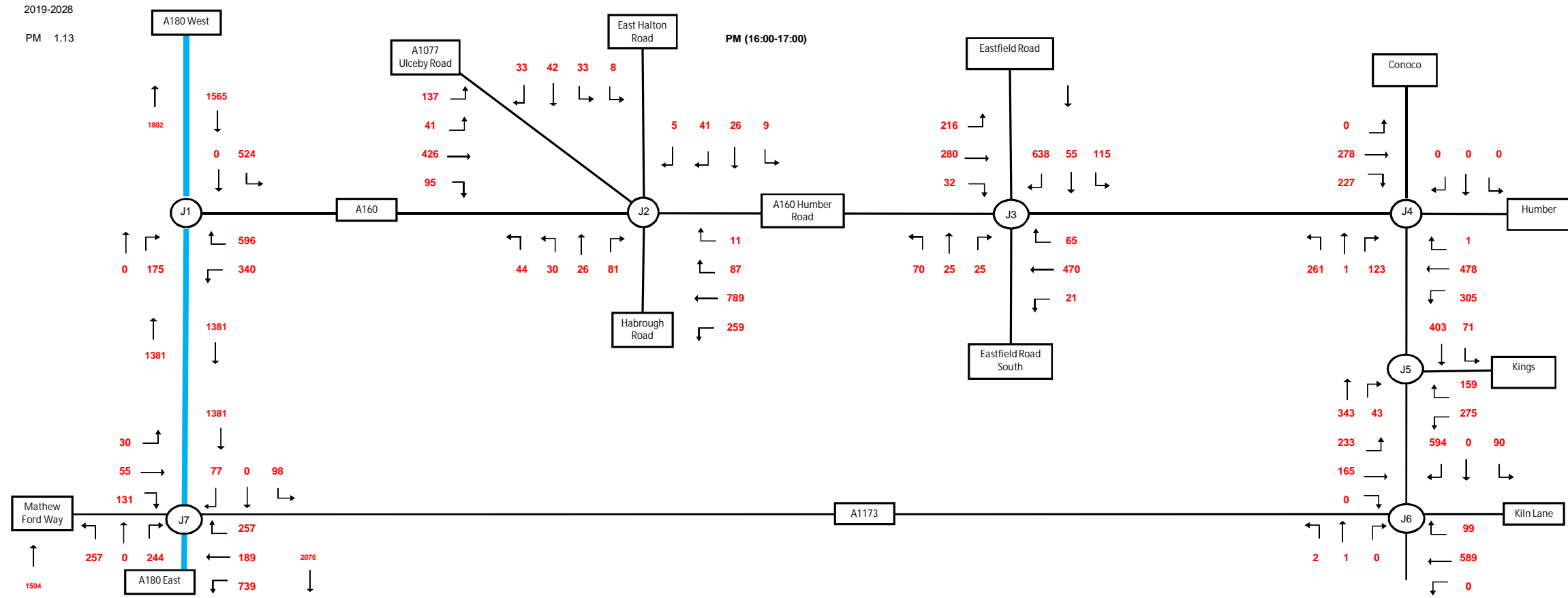
0001.12 North Killingholme Traffic Flows.xlsx



2019-2028  
AM 1.13



2019-2028  
PM 1.13



NOTES

Link	AM	PM	Link	AM	PM	Link	AM	PM
1a	1590	1802	8b	98	421	16a	752	255
1b	2246	1565	9a	978	306	16b	190	689
2a	1550	1381	9b	326	808	17a	0	3.39
2b	1550	1381	10a	808	462	17b	0	0
3a	2408	1594	10b	458	647	18a	1381	370
3b	1692	2076	11a	140	120	18b	369	1185
4a	1333	698	11b	101	108	19a	452	155
4b	658	921	12a	954	401	19b	217	523
5a	126	129	12b	412	784			
5b	145	115	13a	343	503			
6a	35.1	86	13b	534	444			
6b	72.4	80	14a	432	114			
7a	1607	538	14b	78.1	435			
7b	550	1162	15a	769	360			
8a	419	182	15b	311	681			

CLIENT

C. GEN

PROJECT

North Killingholme  
North Killingholme, Lincolnshire

DRAWING TITLE

2028 Base

DWG REF

2028 Base

DATE

14 June 2020

DRAWN BY

AS

CHECKED BY

PW

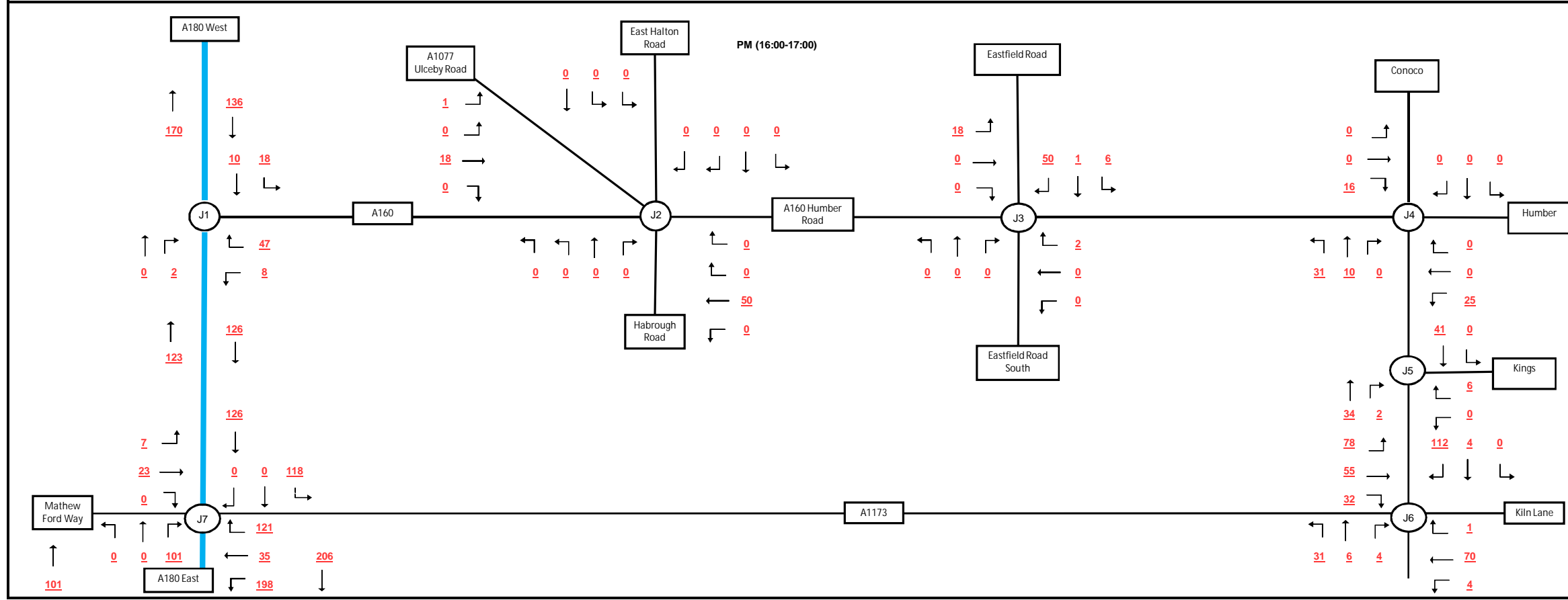
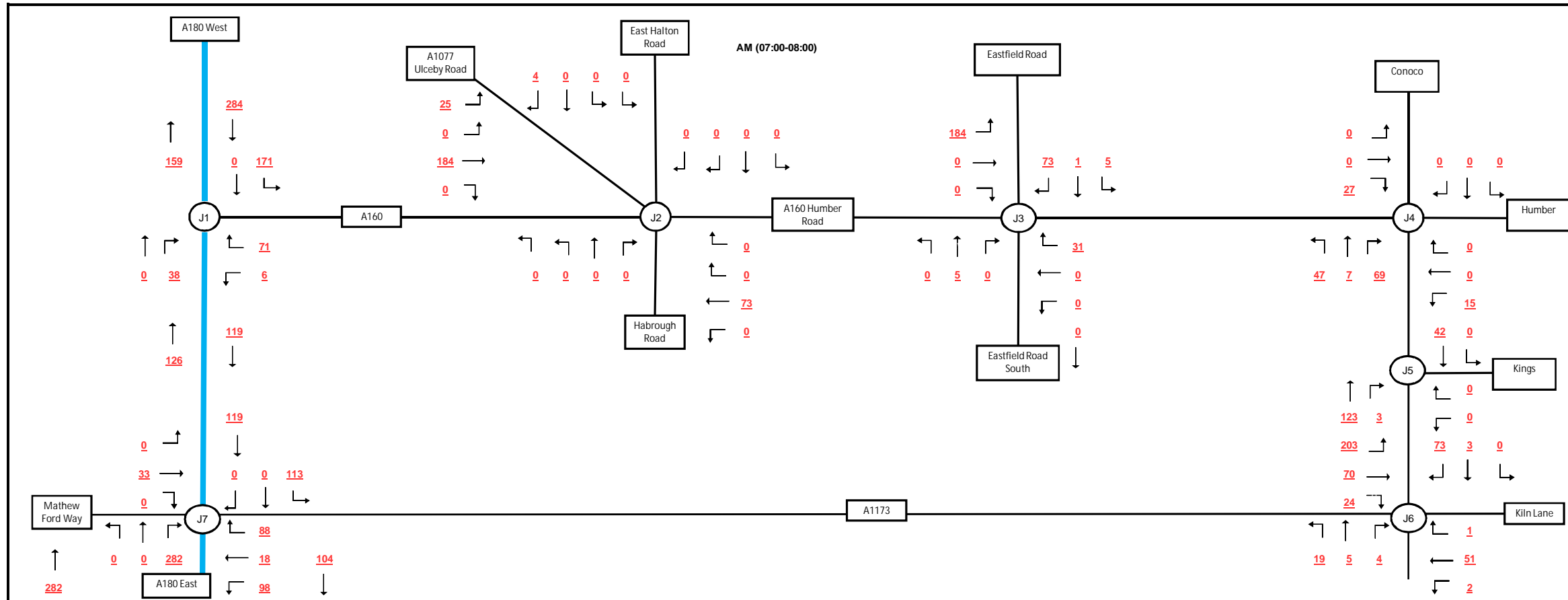
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**NOTES**

Link	AM	PM	Link	AM	PM	Link	AM	PM
1a	159	170	8b	0	0	16a	74	59
1b	284	284	9a	220	20	16b	54	75
2a	126	123	9b	79	57	17a	28	41
2b	119	126	10a	16	11	17b	29	40
3a	282	101	10b	39	16.5	18a	363	192
3b	104	206	11a	5	0	18b	174	284
4a	209	20	11b	1	1	19a	33	18
4b	77	52.5	12a	69	0	19b	30	35
5a	25	0.5	12b	15	25			
5b	4	0	13a	42	41			
6a	0	0	13b	123	40.5			
6b	0	0	14a	3	2			
7a	184	18	14b	0	6			
7b	73	50	15a	168	60.5			
8a	0	0	15b	59	78.5			


**CLIENT**  
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**PROJECT**  
North Killingholme  
North Killingholme, Lincolnshire

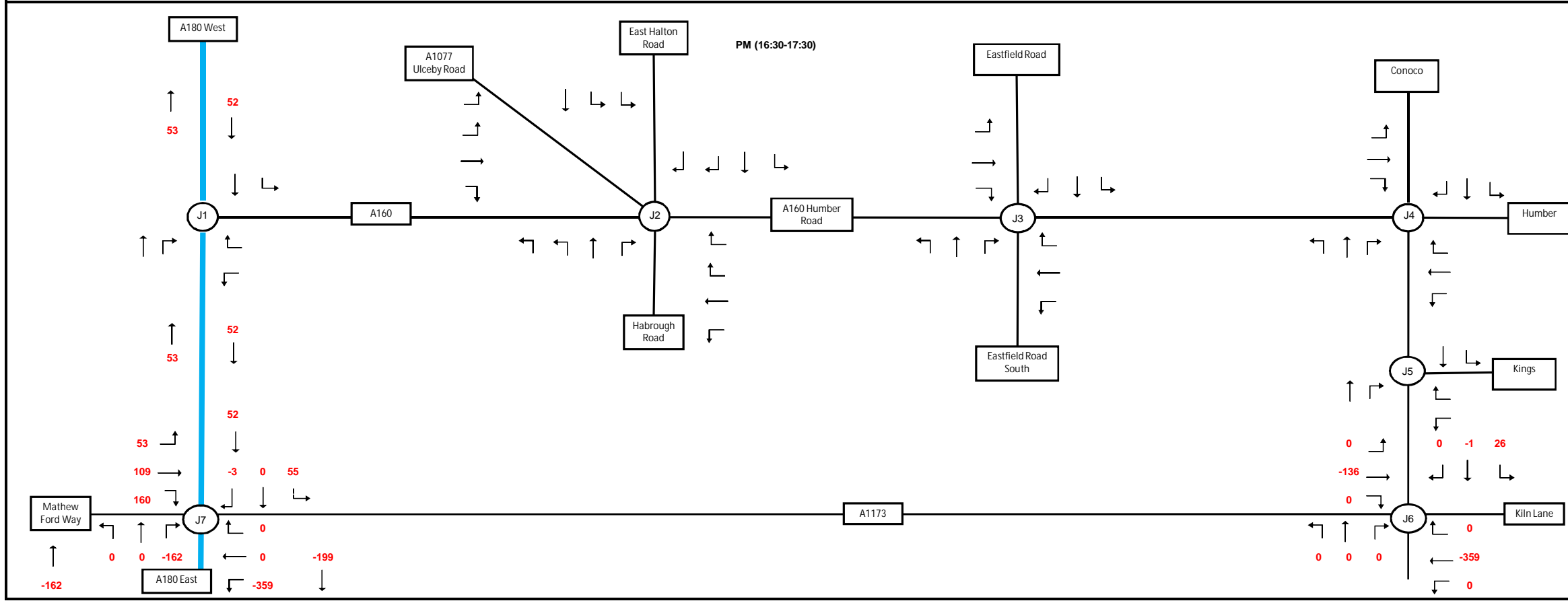
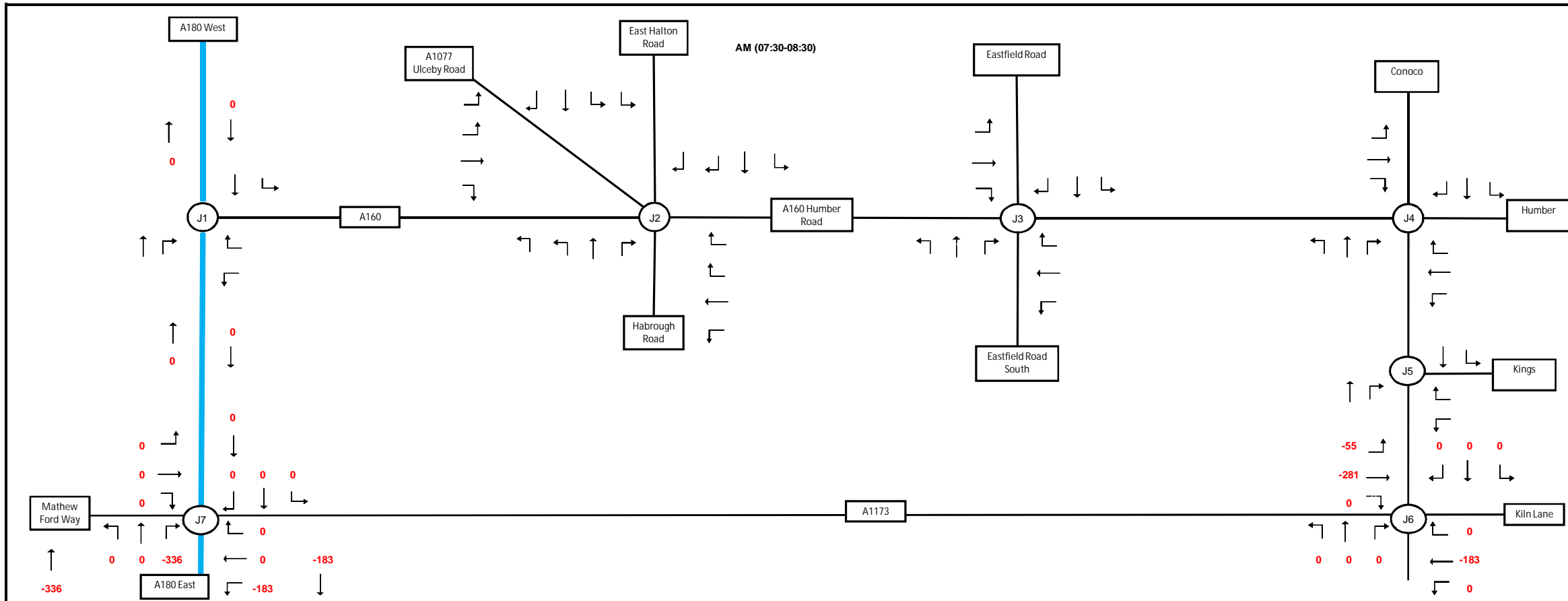
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Total exc. South Humber Link Road  
Committed Development

<b>DWG REF</b> Total Committed	<b>DATE</b> 14 June 2020
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<b>DRAWN BY</b> AS	<b>CHECKED BY</b> PW	<b>APPROVED BY</b> AS
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**DATA FILE**  
0001.12 North Killingholme Traffic Flows.xlsx

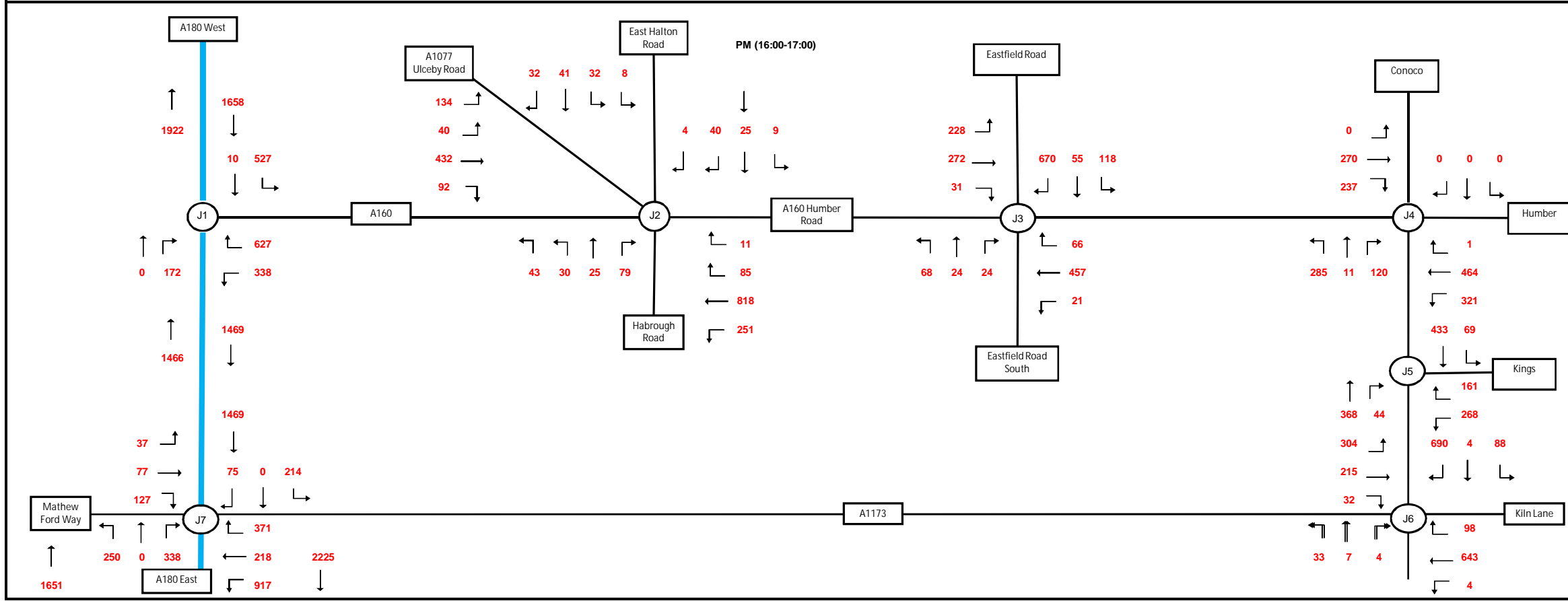
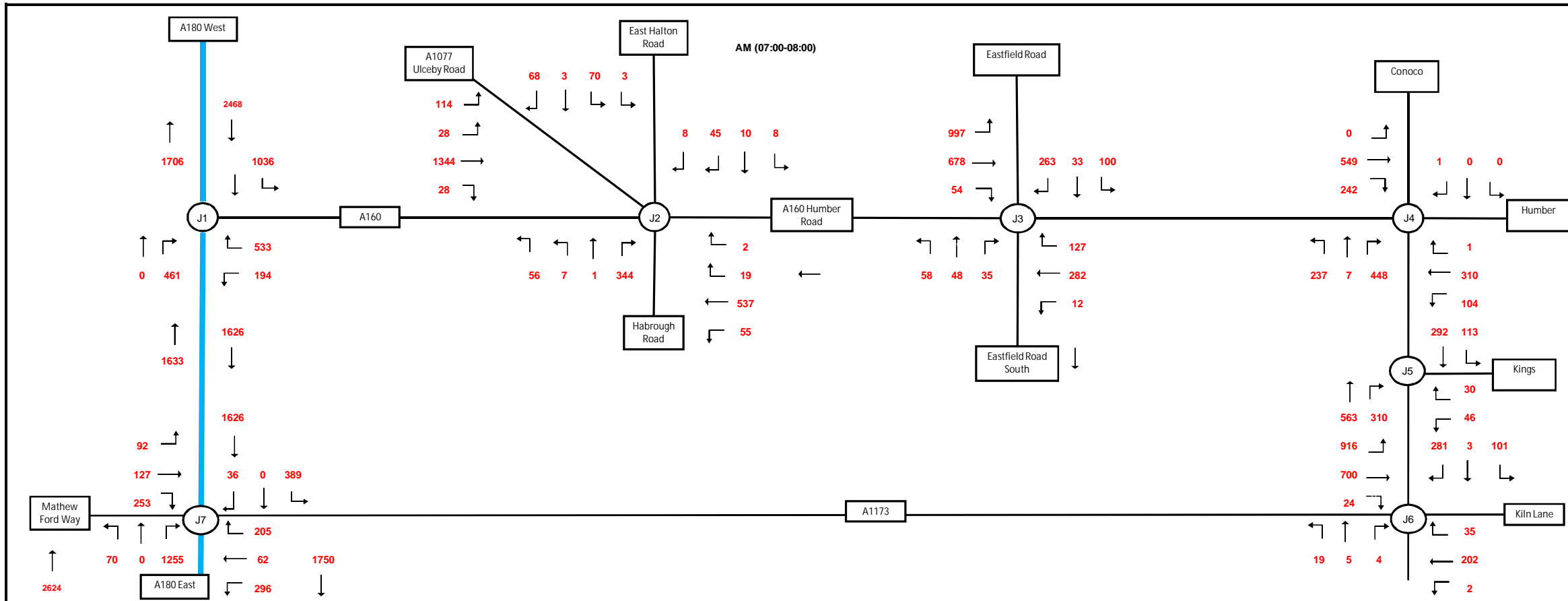


**NOTES**  
The flows shown in this figure are taken from the South Humber Bank Link Road TA and represent the effect of the Stallingborough Link Road which are derived from the following:

Base + Committed Development + Scheme - Base + Committed Development

Link	AM	PM	Link	AM	PM	Link	AM	PM
1a	0	53	8b	0	0	16a	####	-110
1b	0	52	9a	0	0	16b	-183	-359
2a	0	53	9b	0	0	17a	0	0
2b	0	52	10a	0	####	17b	-281	-1
3a	-336	-162	10b	0	0	18a	####	-122
3b	-183	-199	11a	0	0	18b	-183	-359
4a	0	0	11b	0	0	19a	0	0
4b	0	0	12a	0	0	19b	322	-3
5a	0	0	12b	0	0			
5b	0	0	13a	####	####			
6a	0	0	13b	0	0			
6b	0	0	14a	0	0			
7a	0	0	14b	0	0			
7b	0	0	15a	-27.5	0			
8a	0	0	15b	0	12.5			

<b>CLIENT</b>		
C. GEN		
<b>PROJECT</b>		
North Killingholme North Killingholme, Lincolnshire		
<b>DRAWING TITLE</b>		
South Humber Link Road Committed Development		
<b>DWG REF</b>		<b>DATE</b>
South Humber Link Road		14 June 2020
<b>DRAWN BY</b>	<b>CHECKED BY</b>	<b>APPROVED BY</b>
AS	PW	AS
		
<b>DATA FILE</b>		
0001.12 North Killingholme Traffic Flows.xlsx		



**NOTES**


Link	AM	PM	Link	AM	PM	Link	AM	PM
1a	1706	1922	8b	96	410	16a	805	307
1b	2468	1658	9a	1171	318	16b	239	745
2a	1633	1466	9b	396	843	17a	28	44.3
2b	1626	1469	10a	802	461	17b	29	40
3a	2624	1651	10b	485	646	18a	1706	552
3b	1750	2225	11a	142	116	18b	532	1436
4a	1505	699	11b	99	106	19a	472	169
4b	717	948	12a	997	390	19b	241	543
5a	147	126	12b	416	787			
5b	145	112	13a	376	530			
6a	34.1	83	13b	643	472			
6b	70.5	78	14a	424	113			
7a	1747	541	14b	76	429			
7b	608	1180	15a	915	410			
8a	407	177	15b	362	741			

**CLIENT**  
C. GEN

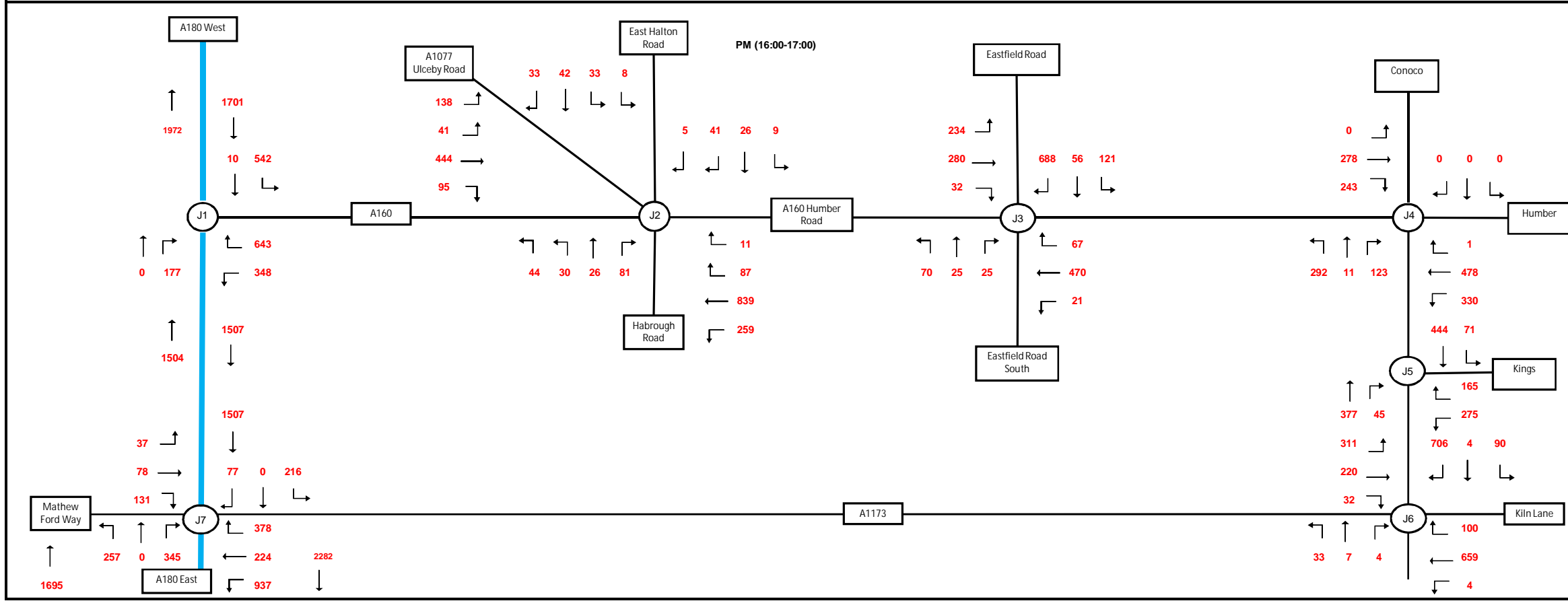
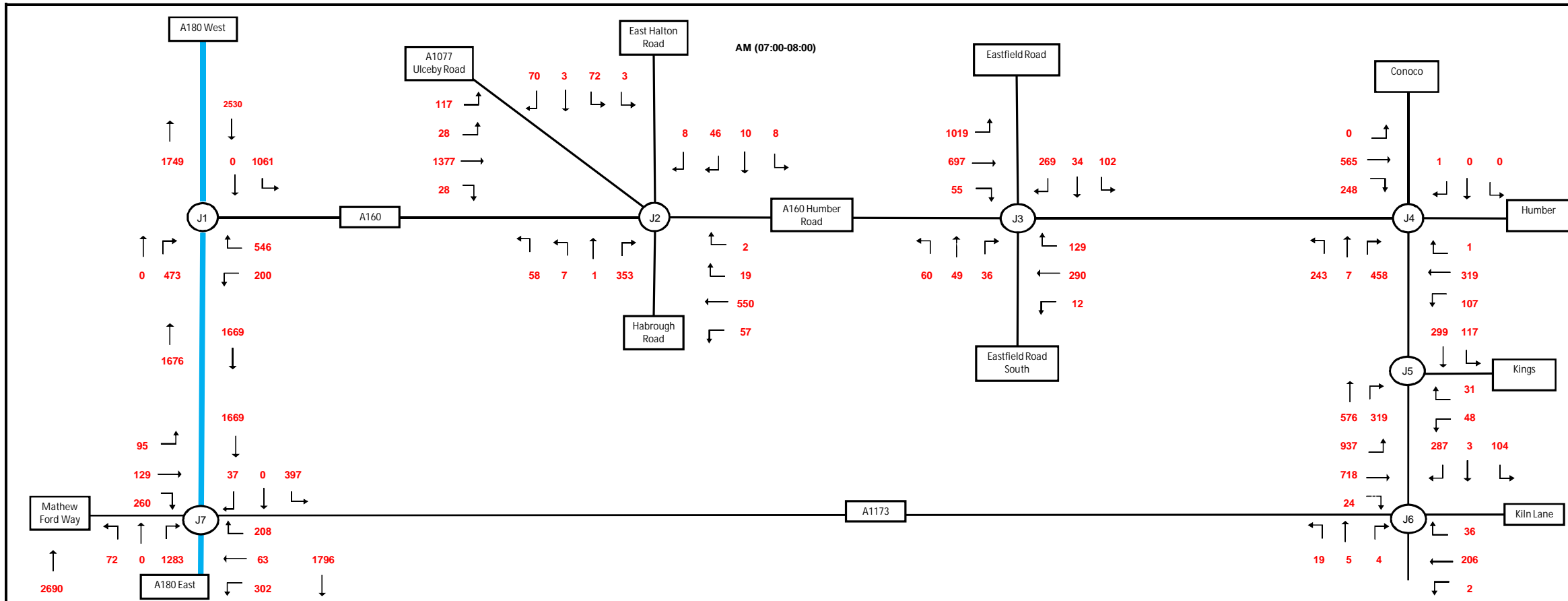
**PROJECT**  
North Killingholme  
North Killingholme, Lincolnshire

**DRAWING TITLE**  
2025 Base + Committed

<b>DWG REF</b> 2025 Base + Committed	<b>DATE</b> 14 June 2020	
<b>DRAWN BY</b> AS	<b>CHECKED BY</b> PW	<b>APPROVED BY</b> AS



**DATA FILE**  
0001.12 North Killingholme Traffic Flows.xlsx



**NOTES**


Link	AM	PM	Link	AM	PM	Link	AM	PM
1a	1749	1972	8b	98	421	16a	826	314
1b	2530	1701	9a	1198	326	16b	244	764
2a	1676	1504	9b	405	865	17a	28	44.4
2b	1669	1507	10a	824	473	17b	29	40
3a	2690	1695	10b	497	664	18a	1744	562
3b	1796	2282	11a	145	120	18b	543	1469
4a	1542	718	11b	102	109	19a	485	173
4b	735	974	12a	1023	401	19b	247	558
5a	151	130	12b	427	809			
5b	149	115	13a	385	544			
6a	35.1	86	13b	657	484			
6b	72.4	80	14a	435	116			
7a	1791	556	14b	78.1	441			
7b	623	1212	15a	936	420			
8a	419	182	15b	370	760			

**CLIENT**  
C. GEN

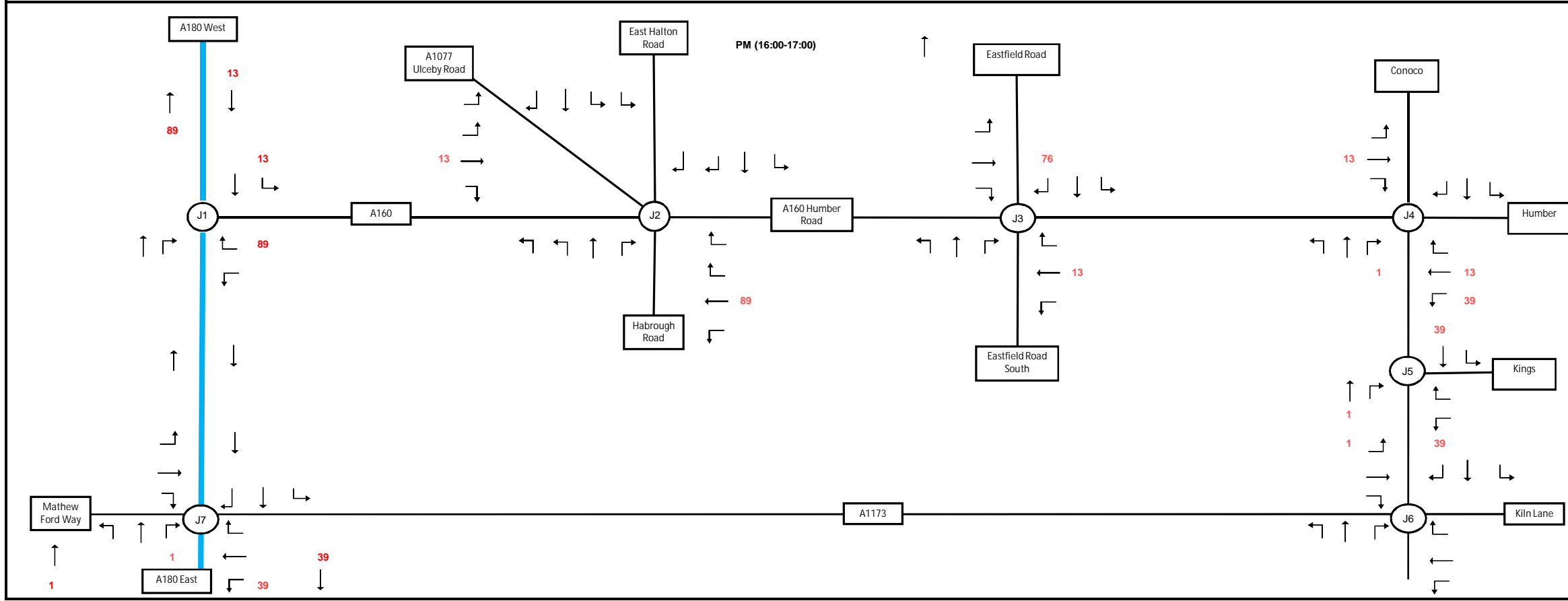
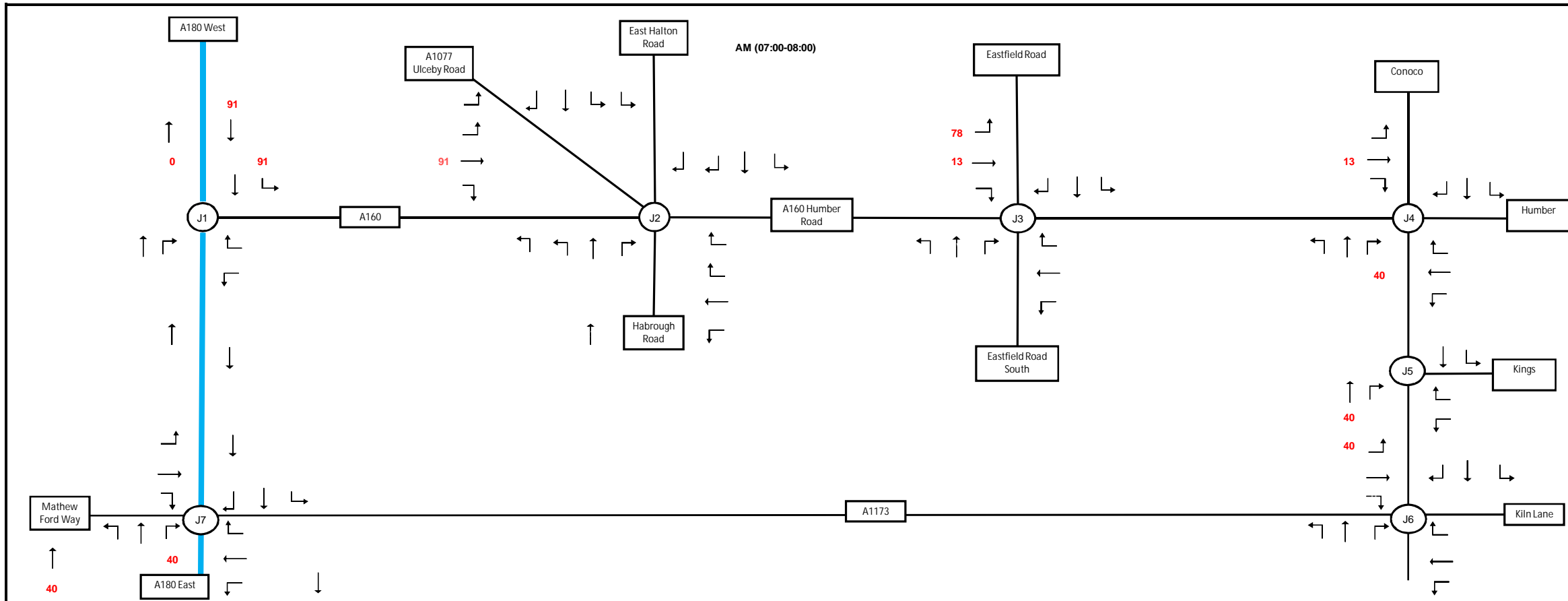
**PROJECT**  
North Killingholme  
North Killingholme, Lincolnshire

**DRAWING TITLE**  
2028 Base + Committed

<b>DWG REF</b> 2028 Base + Committed	<b>DATE</b> 14 June 2020	
<b>DRAWN BY</b> AS	<b>CHECKED BY</b> PW	<b>APPROVED BY</b> AS



**DATA FILE**  
0001.12 North Killingholme Traffic Flows.xlsx



**NOTES**


Link	AM	PM	Link	AM	PM	Link	AM	PM
1a	0	89	8b	0	0	16a	0	0
1b	91	0	9a	78	0	16b	0	0
2a	0	0	9b	0	76	17a	0	0
2b	0	0	10a	13	6.5	17b	0	0
3a	0	1	10b	0	13	18a	40	1
3b	0	39	11a	0	0	18b	0	39
4a	0	13	11b	0	0	19a		
4b	0	89	12a	53	14	19b		
5a	0	0	12b	0	52			
5b	40	0	13a	0	39			
6a	0	0	13b	40	1			
6b	0	0	14a	0	0			
7a	0	7	14b	0	0			
7b	0	89	15a	40	1			
8a	0	0	15b	0	39			

**CLIENT**  
C. GEN

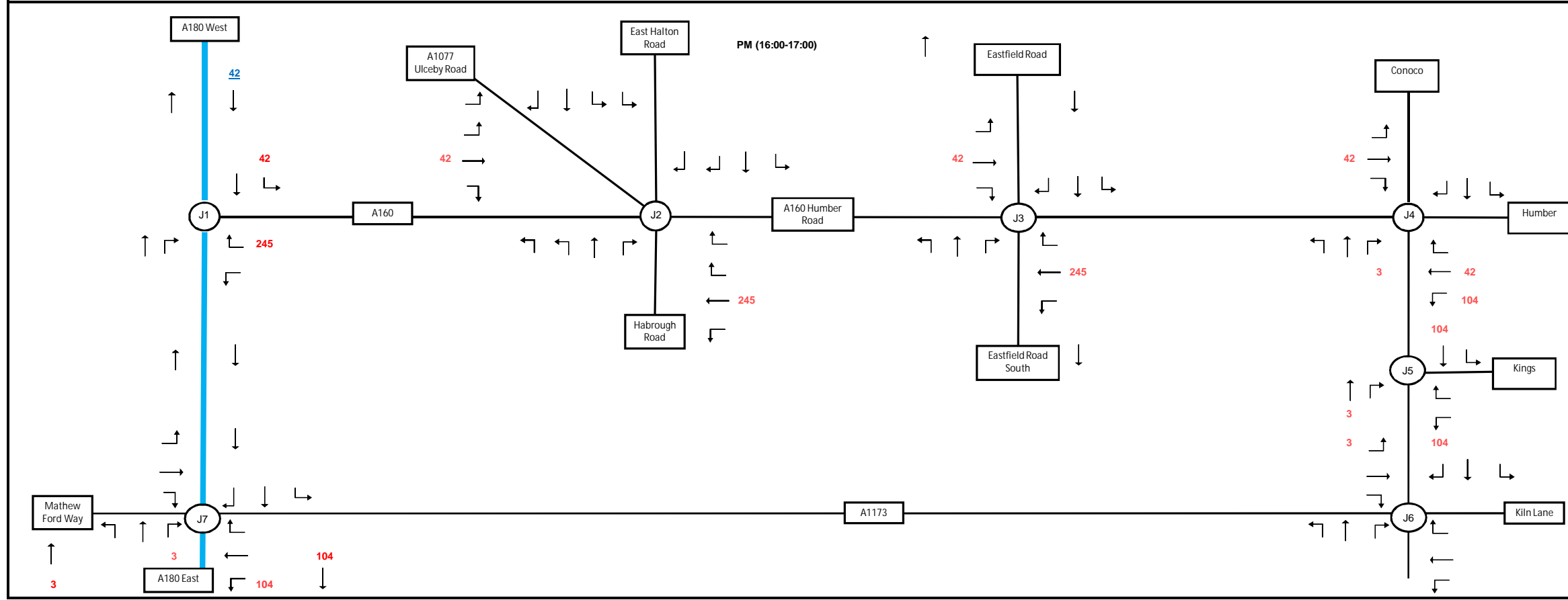
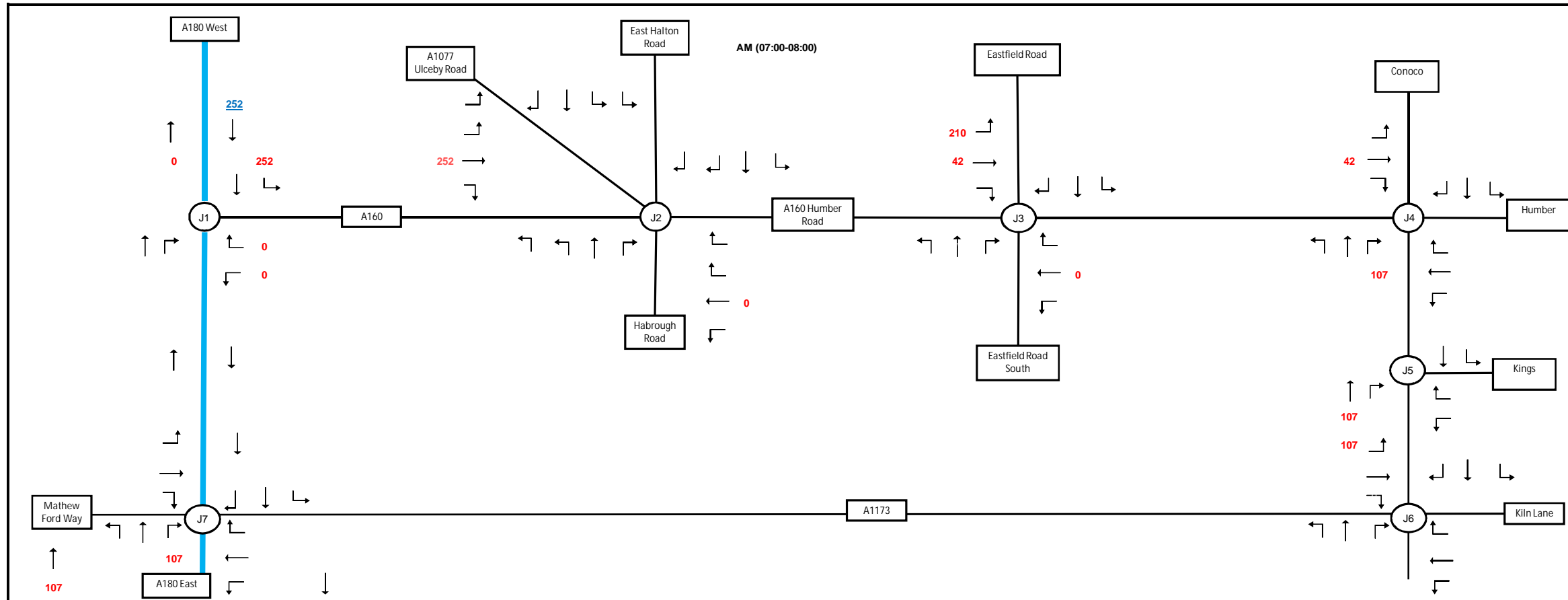
**PROJECT**  
North Killingholme  
North Killingholme, Lincolnshire

**DRAWING TITLE**  
Development Trips  
Scenario A

<b>DWG REF</b> 2016 A D	<b>DATE</b> 14 June 2020	
<b>DRAWN BY</b> AS	<b>CHECKED BY</b> PW	<b>APPROVED BY</b> AS



**DATA FILE**  
0001.12 North Killingholme Traffic Flows.xlsx



**NOTES**


Link	AM	PM	Link	AM	PM	Link	AM	PM
1a	0	0	8b	0	0	16a	0	0
1b	252	0	9a	210	0	16b	0	0
2a	0	0	9b	0	0	17a	0	0
2b	0	0	10a	42	42	17b	0	0
3a	107	3	10b	0	144	18a	107	3
3b	0	104	11a	0	0	18b	0	104
4a	252	42	11b	0	0	19a		
4b	0	245	12a	149	45	19b		
5a	0	0	12b	0	146			
5b	0	0	13a	0	104			
6a	0	0	13b	107	3			
6b	0	0	14a	0	0			
7a	252	42	14b	0	0			
7b	0	245	15a	107	3			
8a	0	0	15b	0	104			

**CLIENT**  
C. GEN

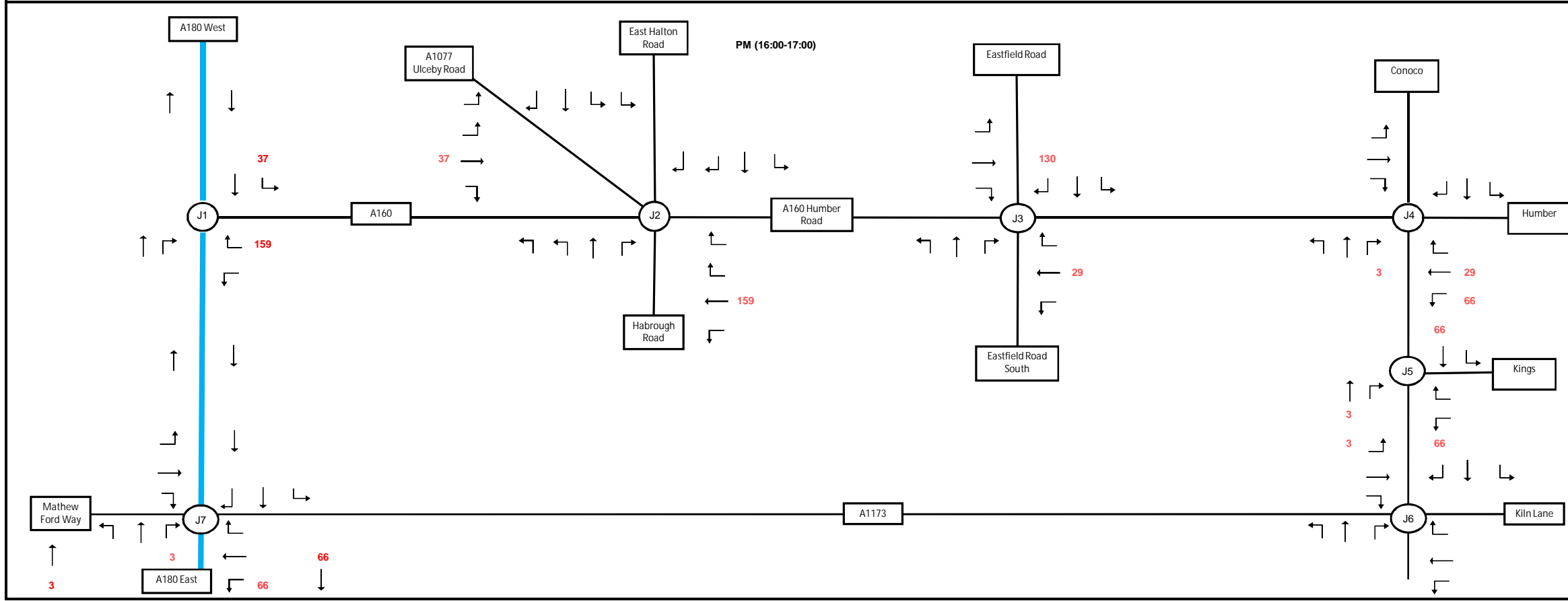
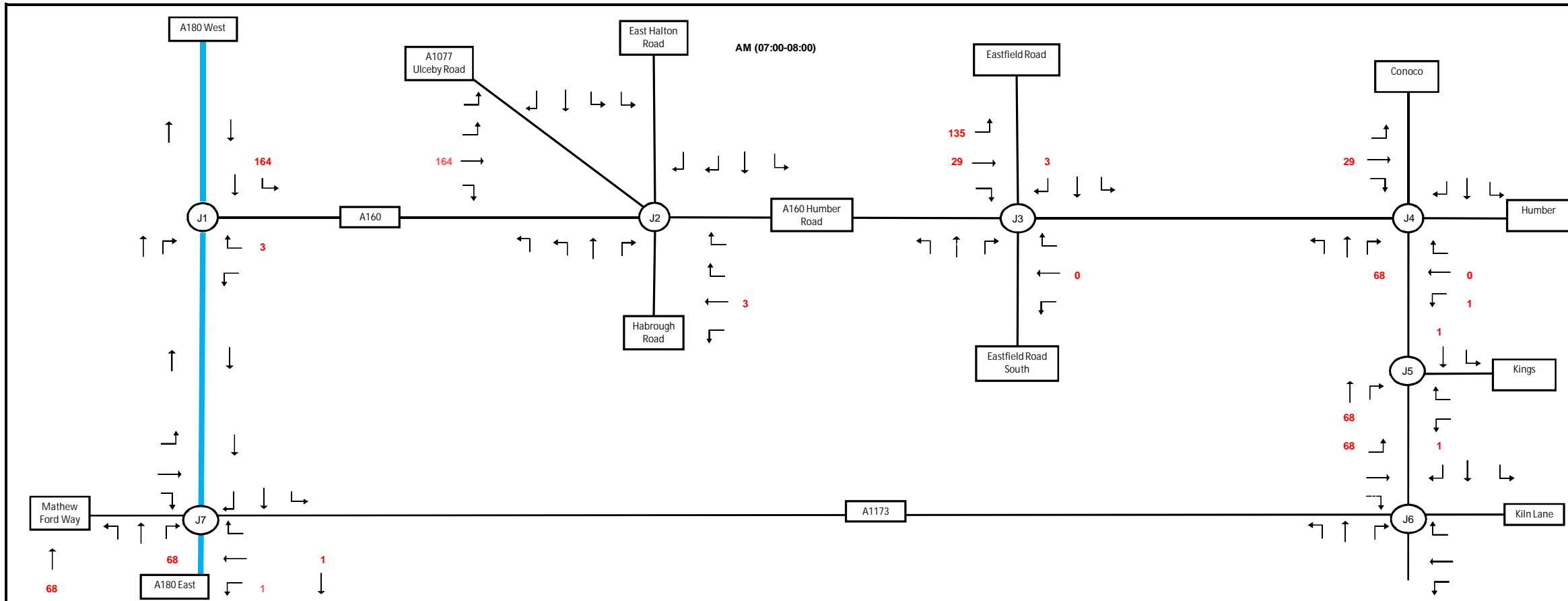
**PROJECT**  
North Killingholme  
North Killingholme, Lincolnshire

**DRAWING TITLE**  
Development Trips  
Scenario C

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<b>DRAWN BY</b> AS	<b>CHECKED BY</b> PW	<b>APPROVED BY</b> AS



**DATA FILE**  
0001.12 North Killingholme Traffic Flows.xlsx



**NOTES**

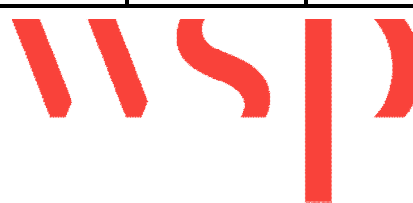
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1a	0	0	8b	0	0	16a	0	0
1b	0	0	9a	135	0	16b	0	0
2a	0	0	9b	3	130	17a	0	0
2b	0	0	10a	29	0	17b	0	0
3a	68	3	10b	0	29	18a	68	3
3b	1	66	11a	0	0	18b	1	66
4a	164	37	11b	0	0	19a		
4b	3	159	12a	97	3	19b		
5a	0	0	12b	1	95			
5b	0	0	13a	1	66			
6a	0	0	13b	68	3			
6b	0	0	14a	0	0			
7a	164	19	14b	0	0			
7b	3	159	15a	68	3			
8a	0	0	15b	1	66			

**CLIENT**  
C. GEN

**PROJECT**  
North Killingholme  
North Killingholme, Lincolnshire

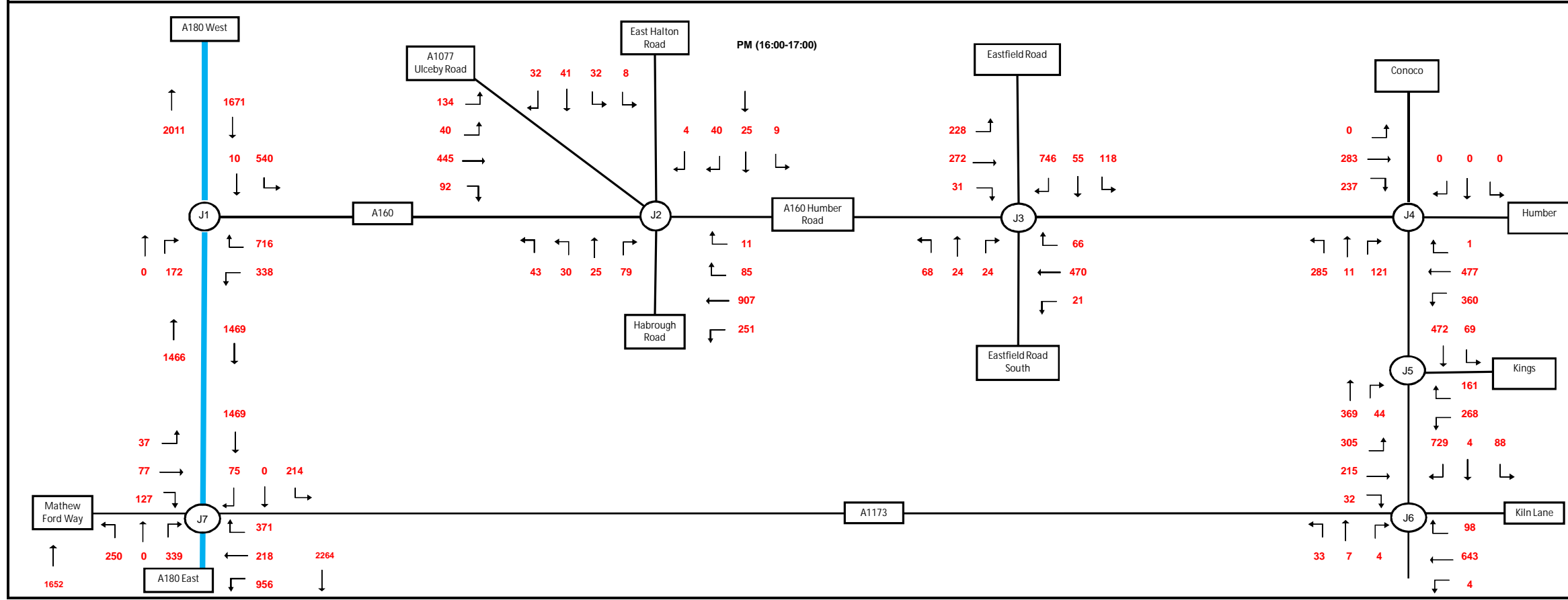
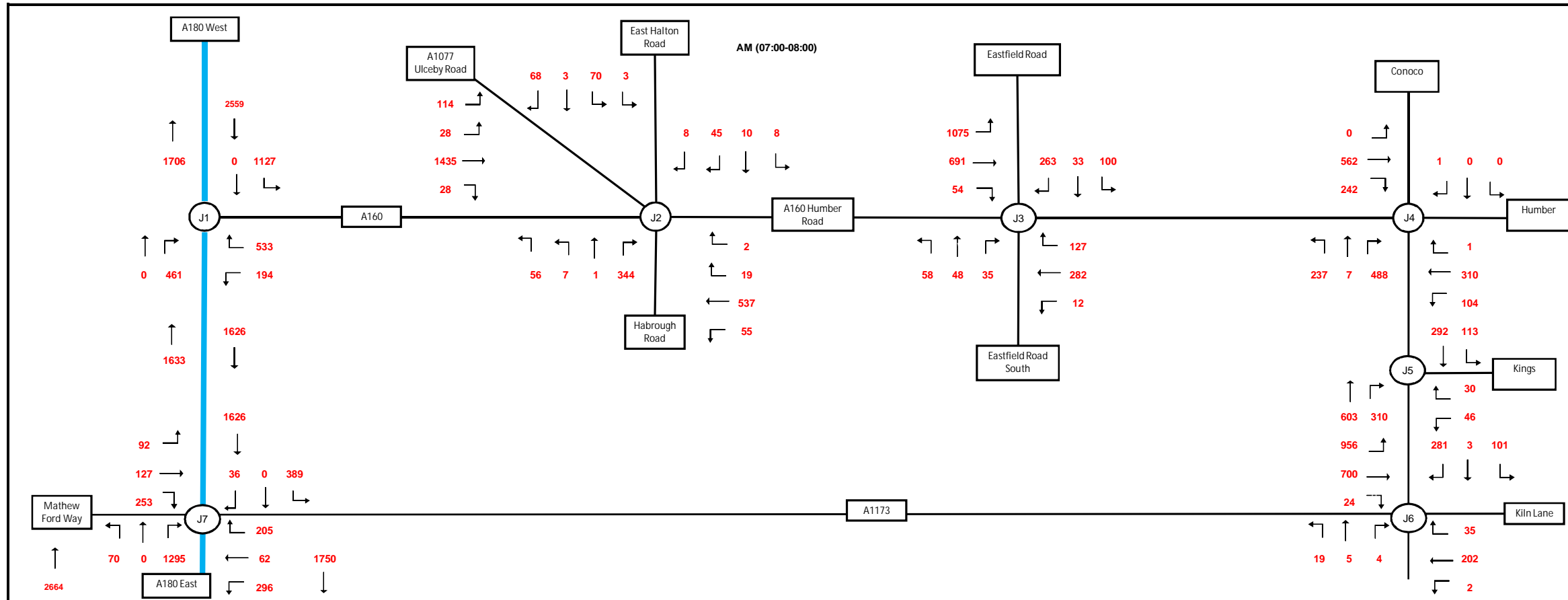
**DRAWING TITLE**  
Development Trips  
Scenario D

<b>DWG REF</b> 2019 D	<b>DATE</b> 14 June 2020	
<b>DRAWN BY</b> AS	<b>CHECKED BY</b> PW	<b>APPROVED BY</b> AS



**DATA FILE**  
0001.12 North Killingholme Traffic Flows.xlsx





**NOTES**


Link	AM	PM	Link	AM	PM	Link	AM	PM
1a	1706	2011	8b	96	410	16a	805	307
1b	2559	1671	9a	1249	318	16b	239	745
2a	1633	1466	9b	396	919	17a	28	44.3
2b	1626	1469	10a	815	467	17b	29	40
3a	2664	1652	10b	485	659	18a	1746	553
3b	1750	2264	11a	142	116	18b	532	1475
4a	1596	712	11b	99	106	19a	472	169
4b	717	1037	12a	1050	404	19b	241	543
5a	147	126	12b	416	839			
5b	145	112	13a	376	569			
6a	34.1	83	13b	683	473			
6b	70.5	78	14a	424	113			
7a	1838	548	14b	76	429			
7b	608	1269	15a	955	411			
8a	407	177	15b	362	780			

**CLIENT**  
C. GEN

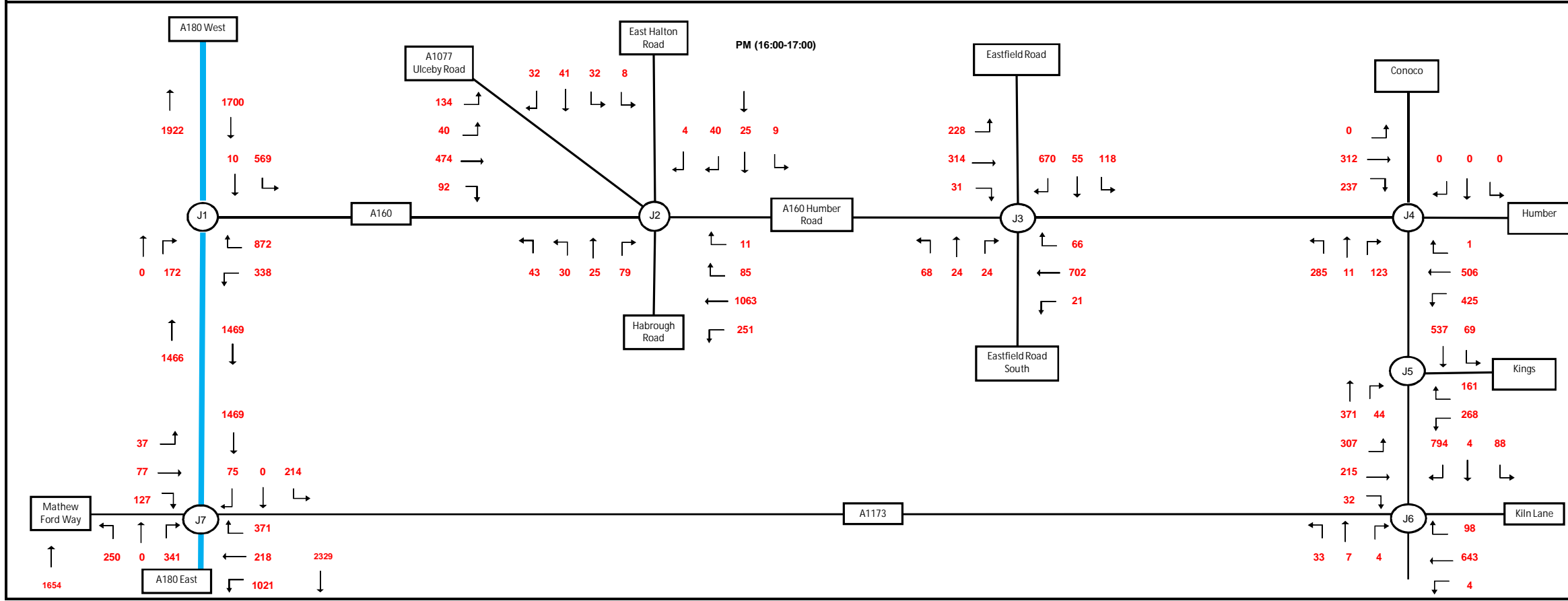
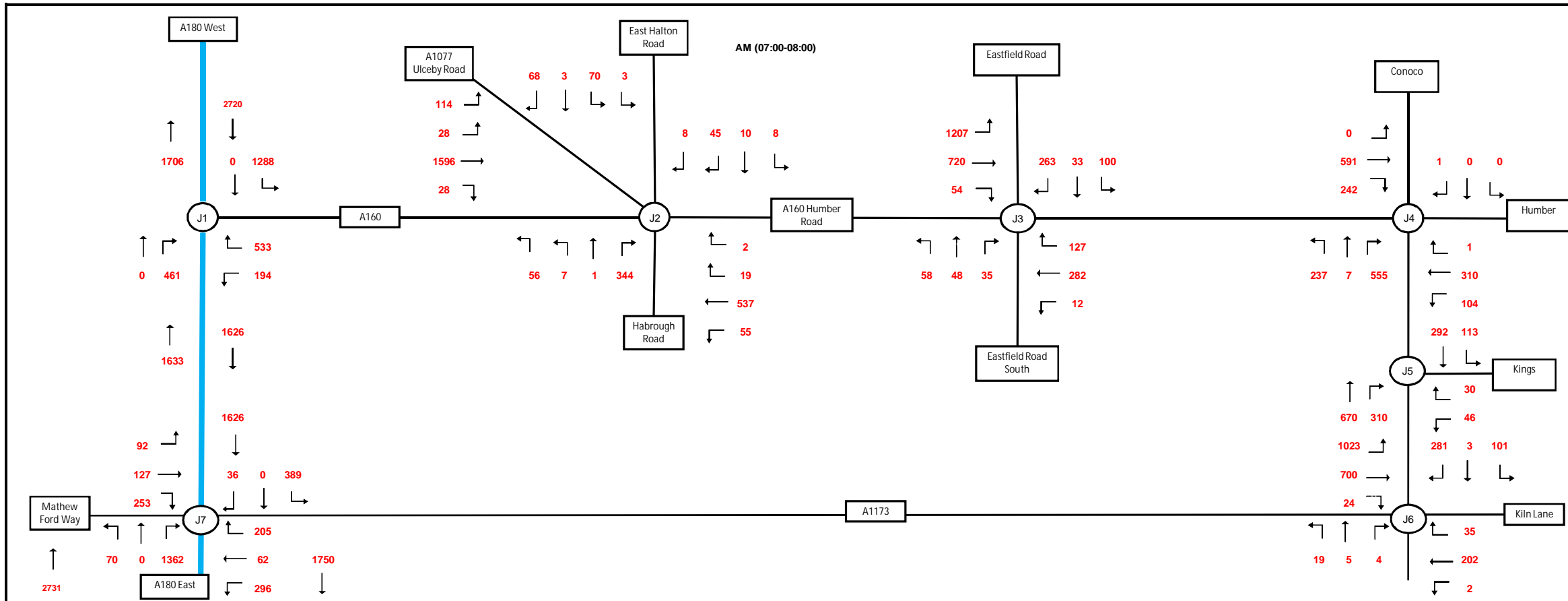
**PROJECT**  
North Killingholme  
North Killingholme, Lincolnshire

**DRAWING TITLE**  
2025 Scenario A

<b>DWG REF</b> 2025 Scenario A	<b>DATE</b> 14 June 2020	
<b>DRAWN BY</b> AS	<b>CHECKED BY</b> PW	<b>APPROVED BY</b> AS



**DATA FILE**  
0001.12 North Killingholme Traffic Flows.xlsx



**NOTES**


Link	AM	PM	Link	AM	PM	Link	AM	PM
1a	1706	1922	8b	96	410	16a	805	307
1b	2720	1700	9a	1381	318	16b	239	745
2a	1633	1466	9b	396	843	17a	28	44.3
2b	1626	1469	10a	844	503	17b	29	40
3a	2731	1654	10b	485	790	18a	1813	555
3b	1750	2329	11a	142	116	18b	532	1540
4a	1757	741	11b	99	106	19a	472	169
4b	717	1193	12a	1146	435	19b	241	543
5a	147	126	12b	416	933			
5b	145	112	13a	376	634			
6a	34.1	83	13b	750	475			
6b	70.5	78	14a	424	113			
7a	1999	583	14b	76	429			
7b	608	1425	15a	1022	413			
8a	407	177	15b	362	845			

**CLIENT**  
C. GEN

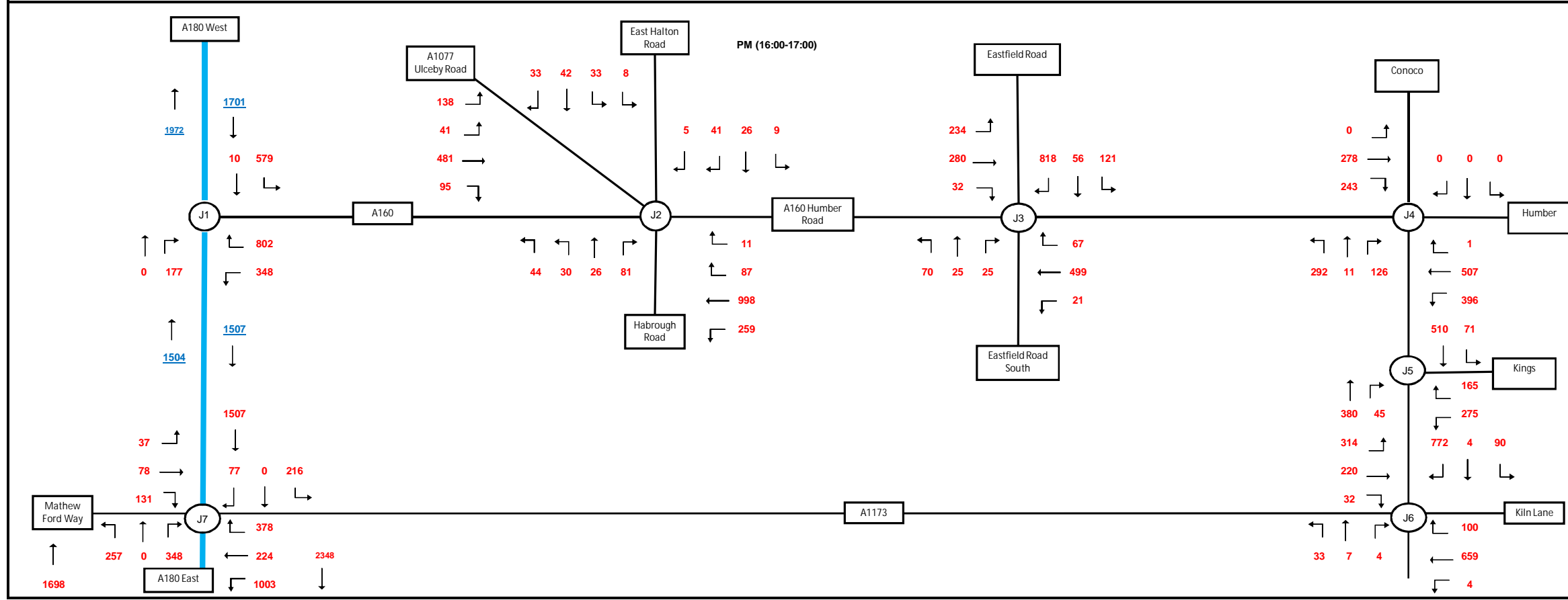
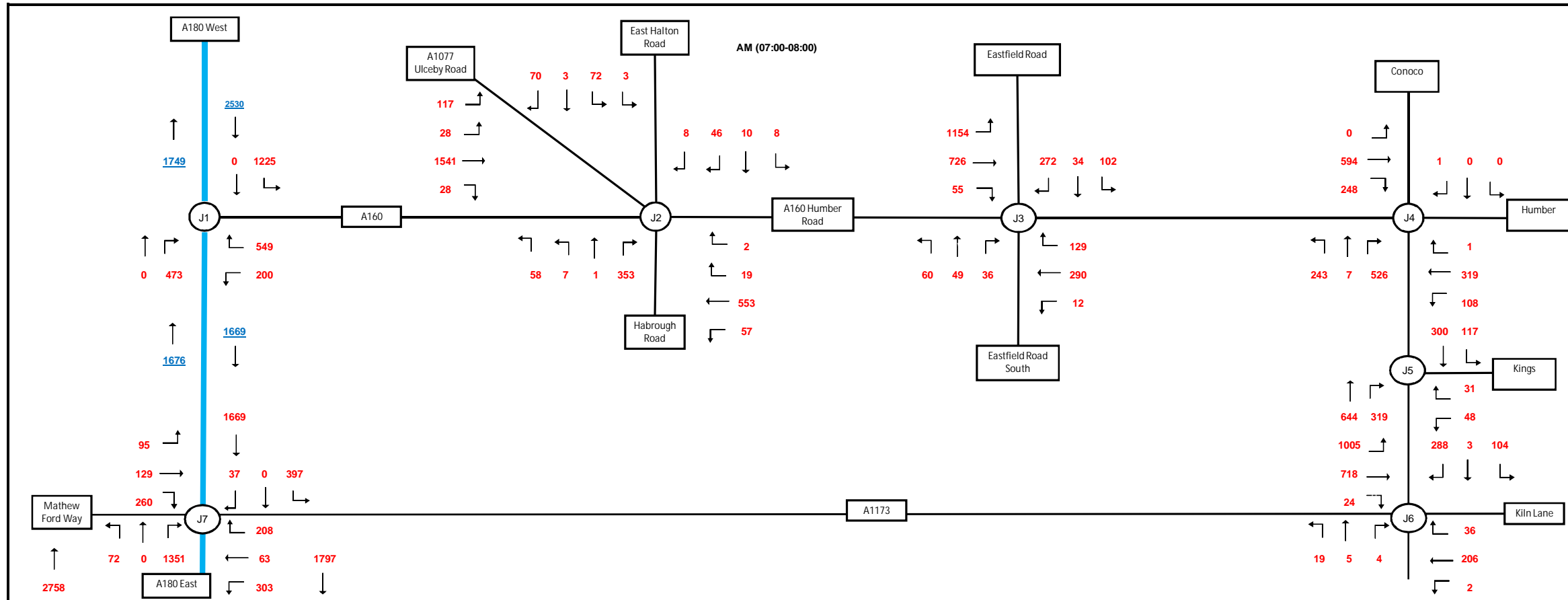
**PROJECT**  
North Killingholme  
North Killingholme, Lincolnshire

**DRAWING TITLE**  
2025 Scenario C

<b>DWG REF</b> 2025 Scenario C	<b>DATE</b> 14 June 2020	
<b>DRAWN BY</b> AS	<b>CHECKED BY</b> PW	<b>APPROVED BY</b> AS



**DATA FILE**  
0001.12 North Killingholme Traffic Flows.xlsx



**NOTES**


Link	AM	PM	Link	AM	PM	Link	AM	PM
1a	1749	1972	8b	98	421	16a	826	314
1b	2530	1701	9a	1333	326	16b	244	764
2a	1676	1504	9b	408	995	17a	28	44.4
2b	1669	1507	10a	853	473	17b	29	40
3a	2758	1698	10b	497	693	18a	1812	565
3b	1797	2348	11a	145	120	18b	544	1535
4a	1706	755	11b	102	109	19a	485	173
4b	738	1133	12a	1120	404	19b	247	558
5a	151	130	12b	428	904			
5b	149	115	13a	386	610			
6a	35.1	86	13b	725	487			
6b	72.4	80	14a	435	116			
7a	1955	574	14b	78.1	441			
7b	626	1371	15a	1004	423			
8a	419	182	15b	371	826			

**CLIENT**  
C. GEN

**PROJECT**  
North Killingholme  
North Killingholme, Lincolnshire

**DRAWING TITLE**  
2028 Scenario D

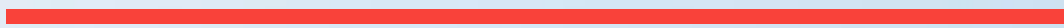
<b>DWG REF</b> 2028 Scenario D	<b>DATE</b> 14 June 2020	
<b>DRAWN BY</b> AS	<b>CHECKED BY</b> PW	<b>APPROVED BY</b> AS



**DATA FILE**  
0001.12 North Killingholme Traffic Flows.xlsx

# Appendix C

COMMITTED DEVELOPMENT –  
SUMMARY TABLE



Development	Developer	Planning stage	Update	Comments
Heron Renewable Energy Plant	Drax	Consented – dropped by Developer	<a href="#">Drax dropped plans for 300MW dedicated biomass plant in Immingham to focus on converting its coal plant in 2012.[1]</a>	<b>Excluded.</b> Application dropped
North Beck Energy Centre	North Beck Energy	Consented	<a href="#">Planning submission was issued to North East Lincolnshire Council in early 2018 for a 49.5MW waste to energy plant on greenfield land. North Beck Energy were granted planning Consented in October 2018 and have applied for an environmental permit. Construction is likely to commence in 2019 and potentially operational by mid-2022[2].</a>	<b>Excluded.</b> Expected to be constructed by 2022. Operational peak hour (1100 – 12:00) doesn't coincide with the proposed development peak hour.
Able Marine Energy Park	Able UK	Elements of Project In construction	This development was consented by PINS in 2014, with Able UK seeking a variation to their marine licence in 2017. A bespoke port facility including heavy duty deep water quays to facilitate the renewable sector specialising in offshore wind. The facility has the flexibility of being open 24 hours / 7 days a week.	<b>Excluded.</b> The TA submitted in support of the AMEP DCO states no traffic will be generated during the proposed Projects predicted AM or PM peak hour.
Able Logistics Park	Able UK	Consented	The site comprises of 497.5 ha with planning permission for warehousing (1,700,000m <sup>2</sup> ), external storage and transportation.	<b>Included.</b>
Hornsea Offshore Wind Farm (Project One & Two)	Orsted	In construction	Hornsea 1 is expected to be the world's biggest offshore wind farm and is forecast to be finished by Q1 2020 generating up to 1,218MW of electricity.	<b>Excluded.</b> Expected to be constructed by 2020. Operational traffic negligible (13 in total)
Hornsea Offshore Wind Farm (Project Three & Four)	Orsted	In planning		<b>Excluded.</b> At planning stage
A160/ A180Highways Improvements	Highways England	Completed	Upgrade 5km of the A160, the works were completed Spring 2017. The objective of the works were to improve access to the Port of Immingham, relieve congestion of the A160 and improve safety to road users and residents.	<b>Included.</b> Delivered and considered within junction assessments. Captured within junction surveys.
URSA Glass-Wool Production	URSA	Application withdrawn	This development was granted planning permission in 2008 for a glass wool manufacturing facility. The planning permission expired in 2011 and the application was made to extend the time limit. URSA withdrew this planning application in 2012.	<b>Excluded.</b> Application withdrawn.

PA/SCO/2018/3 VPI Immingham OCGT	VPI Immingham B Ltd	In planning	Construction, operation and maintenance of a new gas-fired power station with an output capacity of 299MW, on land adjacent to the Combined Heat and Power Plant on Rosper Road, South Killingholme.	<b>Excluded.</b> At planning stage. Expected to be constructed by 2021. Operational impacts negligible
PA/2018/1954			Planning permission to install two-story rear extension including demolition of existing conservatory and single-story extension,	<b>Excluded.</b> At planning stage
PA/2018/1416	Able Ports	Consented	Planning permission to construct new railway siding parallel to existing railway including loading and unloading ramps.	<b>Excluded.</b> Part of AMEP.
PA/SCR/2018/114	Able UK		Temporary permission for the use of the land for car storage and distribution (linked to PA/2019/407 below).	<b>Excluded.</b> Negligible Impact
PA/2019/497	Able UK	In Planning	Planning permission for a change of use to car storage and distribution for a temporary period, provision of an access along Station Road and the construction of a new junction of Rosper Road, security cabin, drainage ditches and new foul drainage.	<b>Excluded.</b> At planning stage
PA/2018/2484			Listed building consent to install another floor and replace roof.	<b>Excluded.</b> At planning stage
PA/2017/1439 The Minorities (DB Schenker)	The Minorities	In Planning	Application for a certificate of lawful development for existing use in respect of opening hours for existing business.	<b>Excluded.</b> At planning stage
PA/2019/562	Network Rail	Prior approval not required.	Determination under Part 18 of the Town and County Planning (General Permitted Development) Order 2015 for prior approval for part re-construction of rail overbridge at East Halton Road between North and South Killingholme.	<b>Excluded.</b> Negligible Impact
PA/2018/393	Total Oil GB Ltd Pipeline	Consented	Planning permission to retain car park and allow HGV parking	<b>Excluded.</b> Negligible Impact
PA/2019/923	Calor Gas Ltd	In Planning	Planning permission to erect a new vehicle maintenance workshop and office building with associated works, off Manby Road.	<b>Excluded.</b> At planning stage
PA/2018/1703	KBC Logistics Ltd	In Planning	Planning permission sought for change of use of lane to erect a workshop, office accommodation, fencing, and a lorry park.	<b>Excluded.</b> At planning stage
PA/2018/2022	Amber REI (Agricultural) Ltd	Consented	Planning permission to erect replacement agricultural dwelling	<b>Excluded.</b> Negligible Impact
PA/2019/893	Mr. H. Chapman	In Planning	Planning permission to retain change of use from agricultural to storage (Use Class C8) with associated hard-standing.	<b>Excluded.</b> At planning stage
PA/2018/1900	A.W Turner & Son	Agric Det – Prior approval not required.	Application for the determination of the requirement for prior approval of a proposed agricultural building.	<b>Excluded.</b> Negligible Impact
PA/2019/867	Amethyst Hotel	In Planning	Planning permission for the change of use from a hotel to a dwelling.	<b>Excluded.</b> At planning stage
PA/2018/1403	Hallands Farm	Consented	Planning permission to construct an access.	<b>Excluded.</b> Negligible Impact
PA/2019/907	Field Farm Feeds	In Planning	Planning permission to erect a detached dwelling in connection with an existing business	<b>Excluded.</b> At planning stage
PA/2018/894	Mr R. Fields	Consented	Planning permission erection of extension to rear, construction of detached double garage to front, alterations to existing porch/	<b>Excluded.</b> Negligible Impact
PA/2018/972	Mr. D Burns	Consented	Planning permission to change the use of an outbuilding from residential (C3) to general industrial (B2)	<b>Excluded.</b> Negligible Impact

PA/2018/470	Mr & Mrs Favell	In Planning	Planning permission for the variation of condition 2 of PA/2013/0891 (to convert a derelict RAF building into a live work unit) to be in accordance with revised plans and elevations, and condition 9 to be in accordance with revised window sketch and material	<b>Excluded.</b> At planning stage
PA/2018/1617	The Gables	Consented	Outline planning permission to erect a single storey dwelling.	<b>Excluded.</b> Negligible Impact
PA/2018/2079	Mr. Tyson	Refused	Outline planning permission for the erection of eight dwellings.	<b>Excluded.</b> Refused
PA/2019/907	Field Farm Feeds	In Planning	Planning permission to erect a detached dwelling in connection with an existing business	<b>Excluded.</b> At planning stage
PA/2018/1034	Philip Bingham Associates	Consented	Planning permission to erect a single storey extension	<b>Excluded.</b> Negligible Impact
PA/2018/1581	Kelgar Homes Ltd	In Planning	Outline planning permission for a residential development including public open space to enable the development of community facilities.	<b>Excluded.</b> At planning stage
PA/2017/1985	Mr. David Walkington	In Planning	Planning permission to change the use of paddock to extend garden boundary.	<b>Excluded.</b> At planning stage
DM/0664/19/FUL Altalto Jet Fuel	Altalto Immingham Ltd	In Planning	Development of a sustainable transport fuels facilities, including various stacks up to 80m high, creation of new accesses, installation of pipe lines, rail link, associated infrastructure and ancillary works.	<b>Excluded.</b> In planning.
South Humber Bank Energy Centre DM/1070/18/FUL	EP UK Investments Ltd	Consented with conditions in April 2019	Construction of an energy from waste facility of up to 49.9MWe gross capacity including emission stack(s), associated infrastructure including parking areas, hard and soft landscaping, the creation of a new access to South Marsh Road, weighbridge facility, and drainage infrastructure, on land at South Humber Bank Power Station	<b>Included.</b> Operational trips greater than 30.
Queens Road Estate, Immingham DM/1027/13/OUT	The Brocklesby Estate	Consented with conditions in April 2014	Proposed Outline development of site E1/3 in the NELC Local Plan for general industry (B2) storage and distribution (B8) and minor office development, research and development, light industry (B1) with associated access and landscaping.	<b>Included.</b> Operational trips greater than 30.
North Beck DM/0026/18/FUL	North Beck Energy Ltd	Consented with conditions in October 2018	Erection of an Energy Recovery Facility with an electricity export capacity of up to 49.5MW and associated infrastructure including a stack to 90m high, parking areas, hard and soft landscaping, access road, weighbridge facility and drainage infrastructure.	<b>Included.</b> Operational trips greater than 30.
Highfield Residential DM/0728/18/OUT	The Brocklesby Estate	Awaiting Decision - Unknown	Outline planning application for the development of up to 525 residential dwellings together with an extra care facility for the elderly with up to 80 units with access to be considered	<b>Excluded.</b> In planning.

Peter Ward Homes Residential DM/1175/17/FUL	Peter Ward Homes	Consented with conditions in December 2019	Residential development for 145 dwellings with associated parking, landscaping and emergency vehicular access only onto Mill Lane.	<b>Excluded.</b> Negligible impact in study area.
Immingham Rail Freight DM/0628/18/FUL	Nu-Energy Ltd	Consented with conditions in December 2018	Partially demolish existing building and erect 20MWE waste to energy power generation facility, 65m stack and associated plant, machinery, parking and external works.	<b>Included.</b> 8 trips in AM and PM peak hour
Vireol DM/0195/17/FUL	Great Coates Energy Ltd	Consented with conditions in August 2017	Erection of industrial building and adjoined two storey office/control room to create power plant (18MW Energy From Waste) including construction of associated access, hard surfacing, erection of 55m chimney stack and installation of necessary plant and machinery.	<b>Excluded.</b> Negligible impact in study area.
Kia DM/0214/15/FUL DM/0147/16/FUL	Greatline Developments Ltd	Consented with conditions in August 2015	Reconfiguration and extension of existing commercial buildings, clearance of existing site office and gatehouse and erection of new buildings, change of use of agricultural land to external vehicle storage (approximately 16.34 hectares) and associated resurfacing, creation of a new vehicle access onto North Moss Lane, new boundary treatments, engineering works and other associated works.	<b>Included.</b> 6 trips in AM and PM peak hour
Link Road DM/0094/18/FUL	North East Lincolnshire Council	Consented with conditions in September 2018	Construction and modifications of a single carriageway highway link with shared cycle and footway from Moody Lane/Woad Lane junction to Hobson Way roundabout with associated works including drainage works, street lighting, fencing and landscaping.	<b>Excluded.</b> Anticipated to reduce traffic flows in study area when construction is completed in Summer 2020.
Stallingborough Interchange DM/0105/18/FUL	North East Lincolnshire Council	Consented with conditions in August 2015	Hybrid application seeking outline consent with access, landscaping and scale to be considered for the development of a 62 hectares Business Park comprising up to 120,176sqm for B1 (Business), B2 (General Industrial) and B8 (Storage and Distribution) associated infrastructure and internal highways. Full application for the creation of a new roundabout, new access roads, associated highway works, substations pumping stations, drainage and landscaping.	<b>Included.</b> Operational trips greater than 30.
Station Road Habrough Residential DM/0950/15/OUT	Habrough Estates Ltd	Consented with conditions in July 2017	Outline application for a residential development of up to 118 dwellings, with access to be considered.	<b>Excluded.</b> Negligible impact in study area.
Station Road Habrough Residential DM/0211/20/REM	Habrough Estates Ltd	Pending Consideration	Reserved matters application following DM/0950/15/OUT, to erect 118 dwellings with appearance, landscaping, layout and scale to be considered.	<b>Excluded.</b> In planning.

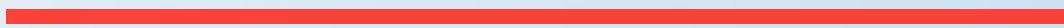
<sup>[1]</sup> <https://utilityweek.co.uk/drax-drops-plans-for-dedicated-biomass-plant-and-raises-163190-million-to-convert-from-coal/> (accessed 28/05/2019).

<sup>[2]</sup> <https://www.grimsbytelegraph.co.uk/news/business/green-light-waste-energy-plant-2102857> (accessed 28/05/2015).



# Appendix D

LINK FLOWS - DIAGRAM






**Key**

● Links

P01	10/06/20	AS	FIRST ISSUE	PW	PW
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REV	DATE	DRW	DESCRIPTION	CHK	APP
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STATUS: **DRAFT**

  
 Amber Court  
 William Armstrong Drive  
 Newcastle upon Tyne  
 NE4 7YQ  
 Tel: +44 (0)191 226 2100  
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CLIENT: **C.GEN**

ARCHITECT: -

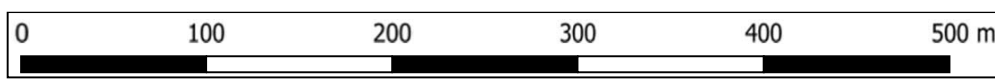
PROJECT: **NORTH KILLINGHOLME DCO AMENDMENTS**

TITLE: **FLOW LINK ANALYSIS**

DRAWN: AS	CHECKED: PW	APPROVED: PW
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QGIS FILE: -	SCALE @A3: AS SHOWN	DATE: 10/06/20
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PROJECT No: 70055743	DRAWING No: 70055743	REV: P01
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# Appendix E

LINK FLOWS - TABLE SUMMARY



Total Vehicle Flows by Link (AM 07:00 - 08:00)

Scenario	Time Period	1a	1b	2a	2b	3a	3b	4a	4b	5a	5b	6a	6b	7a	7b	8a	8b	9a	9b	10a	10b	11a	11b	12a	12b	13a	13b	14a	14b	15a	15b	16a	16b	18a	18b	19a	19b	Total	%age Change
2011 Surveyed	AM (07:00 - 08:00)	1200	1729	987	1172	1899	1231	927	549	0	0	303	239	1014	382	415	106	689	193	561	412	95	40	890	255	352	747	282	73	782	300	553	191	1161	317	0	0	20042	
2016 Do Nothing	AM (07:00 - 08:00)	1273	1821	1031	1224	1983	1287	960	610	93	196	349	253	1073	418	433	107	724	212	601	443	102	43	943	278	372	786	296	79	821	317	582	205	1220	338	0	0	21469	
2019 Do Nothing	AM (07:00 - 08:00)	1300	1863	1051	1248	2030	1312	987	626	97	202	359	260	994	429	231	111	743	217	618	456	106	45	967	285	383	807	305	81	845	326	600	212	1255	347	0	0	21694	
2016 Do Nothing (Base)	AM (07:00 - 08:00)	1344	1992	1031	1230	2083	1309	1169	687	118	200	349	253	1257	491	433	107	944	291	606	474	107	44	1012	289	388	886	296	79	921	333	582	205	1320	354	0	0	23180	
2019 Do Nothing (Base)	AM (07:00 - 08:00)	1371	2034	1089	1251	2130	1334	1196	703	122	206	359	260	1178	502	231	111	963	296	623	487	111	46	1036	296	399	907	305	81	945	342	600	212	1355	363	0	0	23440	
2016 Scenario A	AM (07:00 - 08:00)	1344	2083	1031	1228	1187	1309	1260	687	118	200	349	253	1348	491	433	107	1022	291	619	474	107	44	1065	289	388	926	296	79	961	333	582	205	1360	354	0	0	22819	
2016 Scenario C	AM (07:00 - 08:00)	1344	2244	1031	1228	2190	1309	1421	687	118	200	349	253	1509	491	433	107	1154	291	648	474	107	44	1161	289	388	993	296	79	1028	333	582	205	1427	354	0	0	24763	
2019 Scenario D	AM (07:00 - 08:00)	1371	2034	1089	1251	2198	1335	1360	706	122	206	359	260	1342	505	231	111	1098	299	652	487	111	46	1133	297	400	975	305	81	1013	343	600	212	1423	364	0	0	24315	
2019 Surveyed	AM (07:00 - 08:00)	1405	1984	1369	1369	2127	1495	1178	581	111	128	31	64	1420	486	370	87	864	288	714	405	124	89	843	364	303	472	382	69	679	275	664	168	1220	326	399	192	23045	
2025 Base	AM (07:00 - 08:00)	1547	2184	1507	1507	2342	1646	1296	640	122	141	34	70	1563	535	407	96	951	317	786	446	137	98	928	401	334	520	421	76	748	303	731	185	1343	359	439	211	25371	
2028 Base	AM (07:00 - 08:00)	1590	2246	1550	1550	2408	1692	1333	658	126	145	35	72	1607	550	419	98	978	326	808	458	140	101	954	412	343	534	432	78	769	311	752	190	1381	369	452	217	26086	
2025 Base + Committed	AM (07:00 - 08:00)	1706	2468	1633	1626	2624	1750	1505	717	147	145	34	70	1747	608	407	96	1171	396	802	485	142	99	997	416	376	643	424	76	915	362	805	239	1706	532	472	241	28583	
2028 Base + Committed	AM (07:00 - 08:00)	1749	2530	1676	1669	2690	1796	1542	735	151	149	35	72	1791	623	419	98	1198	405	824	497	145	102	1023	427	385	657	435	78	936	370	826	244	1744	543	485	247	29297	
2025 Scenario A	AM (07:00 - 08:00)	1706	2559	1633	1626	2664	1750	1596	717	147	145	34	70	1838	608	407	96	1249	396	815	485	142	99	1050	416	376	683	424	76	955	362	805	239	1746	532	472	241	29160	0.28
2025 Scenario C	AM (07:00 - 08:00)	1706	2720	1633	1626	2731	1750	1757	717	147	145	34	70	1999	608	407	96	1381	396	844	485	142	99	1146	416	376	750	424	76	1022	362	805	239	1813	532	472	241	30168	0.22
2028 Scenario D	AM (07:00 - 08:00)	1749	2530	1676	1669	2758	1797	1706	738	151	149	35	72	1955	626	419	98	1333	408	853	497	145	102	1120	428	386	725	435	78	1004	371	826	244	1812	544	485	247	30172	0.24
2031 Do Something Core Scenario	AM (07:00 - 08:00)	1677	2279	1465	1363	2608	1294	1409	719	100	172	470	228	1511	570	505	106	1025	266	759	568	66	49	1059	347	361	898	491	130	1002	177	610	163	1437	165	0	0	26049	
2031 Do Something High Scenario	AM (07:00 - 08:00)	1930	2740	1831	1674	3012	1507	1767	822	136	204	963	455	1878	640	1022	107	1206	294	941	610	67	46	1173	515	427	773	552	140	1019	290	633	187	1514	263	0	0	31338	

Comparison (2-way Link Flow)

2016 Scenario C vs 2031 Scenario C	AM (07:00 - 08:00)	1048	1170	1206	476	-11	1116	726	-9	404	277	103	187	-207	153	82	309	661	750																					
2025 Scenario C vs 2031 DS CS	AM (07:00 - 08:00)	470	432	579	346	20	-593	527	-108	486	2	126	156	-134	-121	205	271	743	713																					
2028 Scenario C vs 2031 DS CS	AM (07:00 - 08:00)	323	516	653	316	28	-590	501	-94	450	24	132	142	-148	-107	196	297	753	731																					
2025 Scenario C vs 2031 DS HS	AM (07:00 - 08:00)	-244	-245	-38	-115	-48	-1313	90	-626	277	-222	128	-126	-75	-192	75	224	568	713																					
2028 Scenario C vs 2031 DS HS	AM (07:00 - 08:00)	-391	-161	36	-145	-40	-1310	64	-612	241	-200	134	-140	-89	-178	66	250	578	731																					

Total Vehicle Flows by Link (PM 16:00 - 17:00)

Scenario	Time Period	1a	1b	2a	2b	3a	3b	4a	4b	5a	5b	6a	6b	7a	7b	8a	8b	9a	9b	10a	10b	11a	11b	12a	12b	13a	13b	14a	14b	15a	15b	16a	16b	18a	18b	19a	19b	Total	%age Change
2011 Surveyed	PM (16:00 - 17:00)	1599	1092	1117	918	1287	1841	521	845	0	0	223	391	417	857	125	369	183	624	517	478	118	63	293	612	671	401	75	286	378	767	197	563	391	1147	0	0	19362	
2016 Do Nothing	PM (16:00 - 17:00)	1514	1161	996	960	1347	1981	595	864	124	115	305	417	456	938	200	387	201	737	567	513	128	71	321	654	708	426	80	302	400	808	213	595	415	1233	0	0	20729	
2019 Do Nothing	PM (16:00 - 17:00)	1725	1187	1192	981	1377	1976	610	889	127	117	243	429	468	937	135	397	206	676	570	529	131	71	330	673	727	440	82	312	413	832	221	612	428	1241	0	0	21282	
2016 Do Nothing (Base)	PM (16:00 - 17:00)	1563	1179	998	968	1353	2009	614	919	125	120	305	417	474	988	200	387	221	794	573	515	128	72	321	668	728	432	80	308	403	828	213	595	421	1253	0	0	21169	
2019 Do Nothing (Base)	PM (16:00 - 17:00)	1774	1205	1194	988	1383	2004	630	944	128	122	243	429	486	987	135	397	226	733	576	531	131	72	330	687	747	446	82	318	416	852	221	612	434	1261	0	0	21721	
2016 Scenario A	PM (16:00 - 17:00)	1652	1179	998	968	1354	2048	627	658	83	120	236	417	481	566	200	217	221	870	580	528	128	72	335	720	767	433	80	308	404	867	213	595	422	1292	0	0	20636	
2016 Scenario C	PM (16:00 - 17:00)	1563	1179	998	968	1356	2113	656	736	83	120	236	417	516	644	200	217	221	794	615	658	128	72	366	814	832	435	80	308	406	932	213	595	424	1357	0	0	21250	
2019 Scenario D	PM (16:00 - 17:00)	1774	1205	1194	988	194	2069	667	710	85	122	172	429	504	588	135	223	226	863	576	560	131	72	333	782	813	4												



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