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Norwich to Tilbury

Volume 7: Other Documents

Document: 7.3 Outline Construction Traffic Management Plan Appendix A - AIL Access Strategy

Final Issue A

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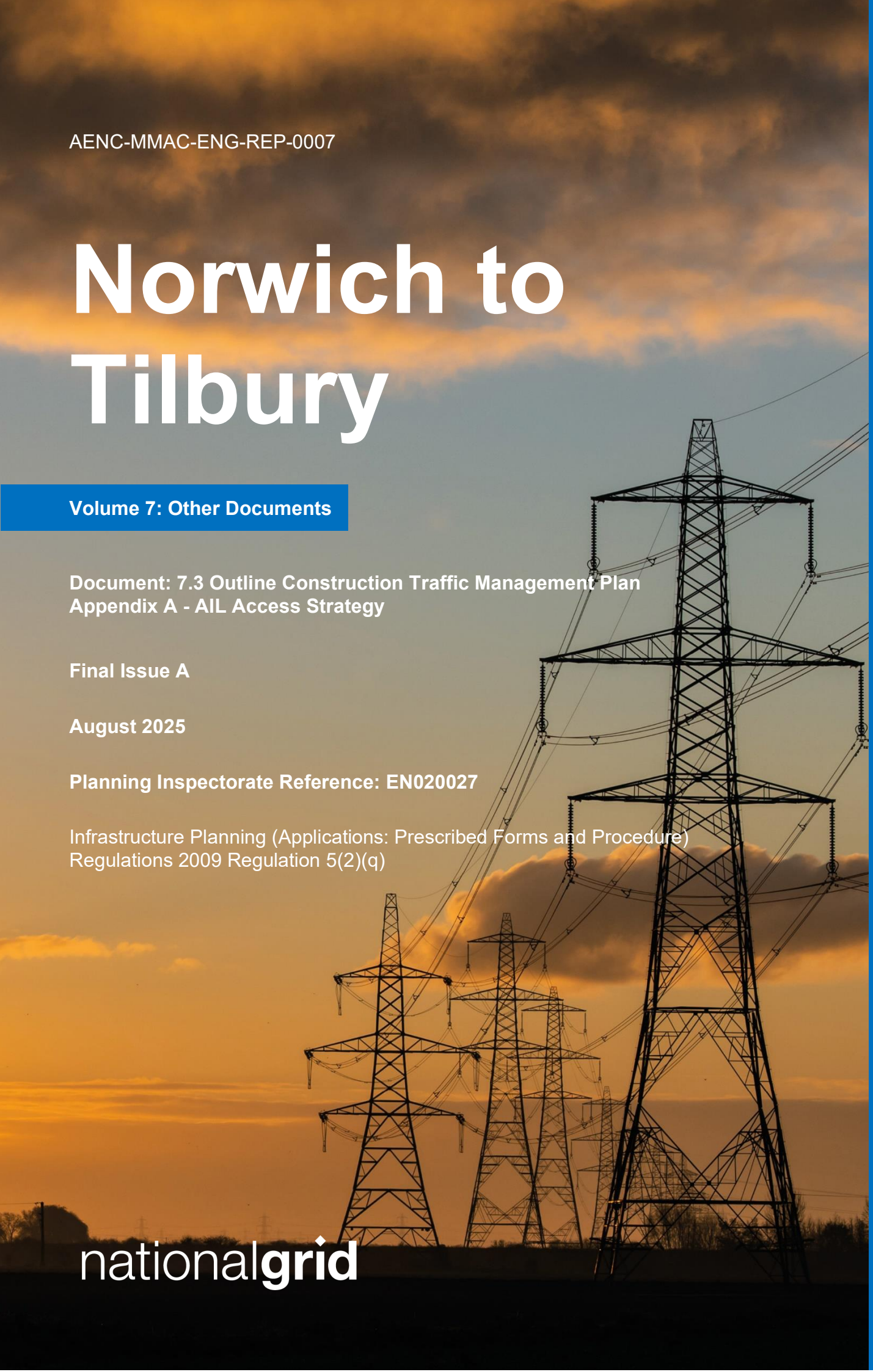

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Executive summary

This report outlines the construction access strategy for the delivery of Abnormal Indivisible Loads (AILs) on the Norwich to Tilbury Project. The strategy is presented in line with the Overarching National Policy Statement (NPS) for Energy (EN-1) (Department for Energy Security and Net Zero 2024a) and Water Preferred Policy Guidelines (National Highways 2019), with a methodology describing the steps required to assess the AIL routes. The routeing principles and vehicle types are driven by the project construction requirements, with overhead line, underground cabling and substation works all requiring AIL deliveries. Of the required vehicles, routeing is assessed for those that are most physically onerous with the most restrictive manoeuvrability; Large Mobile Cranes, Cable Drum Delivery and Transformer Delivery vehicles.

Findings from a multi-modal transport study (see Multi-Mode Transport Report, appended to the Transport Assessment (TA) – document reference 7.11) concluded that in the absence of navigable inland waterways, the only option available to transport the Cable Drums, Transformers and associated equipment is via the road network, originating from coastal ports. Hence, for the Cable Drum and Transformer Delivery AILs, the start locations for each route align with this. The various end locations requiring access are also listed. Details of each Cable Drum/Transformer Delivery route are presented and assessed for their suitability. Routes are taken forward for further discussion or discounted based on constraints, stakeholder feedback and historical AIL usage where applicable.

Large Mobile Crane AILs will be transported along the Strategic Road Network (SRN), Main Road Network (MRN) and prescribed Primary Access Routes (PARs) in order to reach the construction sites. Routeing for the Large Mobile Cranes has been assessed only from the point at which the vehicles leave the SRN/MRN and travel along the local road network, as it has been agreed with National Highways that the SRN/MRN is suitable for Large Mobile Cranes. The journey start locations will be confirmed by the Main Works Contractor. Vehicle movements are forecast for all three vehicles and summarised and the procedures required to implement transportation of the AILs are stated.

This document, which forms an appendix to the Outline Construction Traffic Management Plan (CTMP) (document reference 7.3), presents feasible routes for transporting the AILs required for the Project, and provides information which shows how potential routes have been determined. Though some routes have been discounted due to constraints and/or stakeholder feedback, optionality remains open for most destinations at this stage of the Project where feasible. In the event that development consent is granted for the Project, the Main Works Contractor will take responsibility for securing AIL access through standard procedures such as the Electronic Service Delivery for Abnormal Loads (ESDAL) system and notifying highway authorities/police. These, amongst other procedures, are set out in Section 6.

1. Introduction

1.1 Background

1.1.1 This document outlines the construction access strategy for AILs, which would use the SRN and MRN to access the region. AILs are defined in Section 2.3. The strategy also utilises several prescribed construction access routes – PARs – to access the construction areas.

1.1.2 This document should be read in conjunction with the main body of the Outline Construction Traffic Management Plan (CTMP) (document reference 7.3) and its other appendices.

1.1.3 Whilst policy and guidance documents, including those referenced in Section 1.2, often refer to abnormal loads and AILs interchangeably, for the purpose of this document AILs are, by definition, abnormal loads. Refer to the Glossary for more details.

1.2 Policy and Guidance

Overarching NPS for Energy (EN-1)

1.2.1 NPS EN-1 sets out the basis under which an energy sector Nationally Significant Infrastructure Project (NSIP) will be considered during the DCO application process. In particular, EN-1 Section 5.14 discusses transport impacts.

1.2.2 Within this section, paragraph 5.14.16 sets out the need to consider specific transport arrangements for AILs:

EN-1 Paragraph 5.14.16

"Applicants should consider the DfT [Department for Transport] policy guidance "Water Preferred Policy Guidelines for the movement of abnormal indivisible loads" when preparing their application".

Water Preferred Policy

1.2.3 As per paragraph 2.2.3 of the Water Preferred Policy Guidelines (National Highways 2019), the guidance is not applicable to all AILs:

Water Preferred Policy Guidelines Paragraph 2.2.3

"To minimise the impact on the road network of the Special Order (SO) and VR1 category abnormal loads, it is government policy to avoid road transport as far as possible by using alternative transport modes, such as water"

1.2.4 Parameters for SO and VR1 category abnormal loads are given in the Water Preferred Policy Guidelines footnotes. These are summarised in Table 1.1 below, which indicates the classification parameters for AILs and to which categories the guidelines are applicable:

Table 1.1 Abnormal load classification summary

Characteristic Threshold	All Abnormal Loads	VR1 Classification	SO Classification
Total Vehicle Weight	>44,000kg	Can be up to 44,000kg	>150,000kg
Total Width	>2.9m	5m-6.1m	>6.1m
Rigid Length	>18.65m	Can be up to >18.65m	>30m
Water Preferred Policy Guidelines Applicable?	No	Yes	Yes

1.2.5 Hence, these guidelines are directly applicable to the most onerous loads of more than 150,000kg in weight, 5m in width, or 30m in rigid length.

1.2.6 Paragraph 2.2.4 sets out the principle underpinning the guidelines:

Water Preferred Policy Guidelines Paragraph 2.2.4

"To reduce the distance that abnormal loads move by road, coastal waters will continue to be the preferred transport mode over longer distances. This means taking the load by road to the nearest coastal port unless there is a nearer suitable abnormal load landing facility. Beach landings should also be considered where appropriate. Where the use of inland waterways has the potential to reduce the road journey their use should be considered wherever this is practical, economic and environmentally desirable."

1.2.7 On this basis, the assessment for the routeing of AILs has considered the closest delivery point by sea or inland waterway as a first preference. Inland waterways may be discounted if the use of these would not be practical, economic, or environmentally desirable. The proximity of any such waterways to established coastal ports is also to be considered.

1.2.8 Specific requirements for applications to move specified AILs are set out in the following passages of the Water Preferred Policy Guidelines:

Water Preferred Policy Guidelines Paragraph 3.4.1

"Applicants wishing to move the largest or heaviest abnormal loads by road should contact our abnormal indivisible loads (AIL) team in the first instance, ideally at pre-tender stage. Should applicants not contact us at a sufficiently early stage then this could result in delay to their programme as we have the power to refuse route approval until such time as it has been satisfied that all the transport options have been considered. Many of the applications to move by road will be unaffected by the water preferred policy because their journey is either wholly inland with no nearby suitable waterways, or involves moving a small number of long loads or prior agreement on the mode of transport has been reached".

1.2.9 This establishes a strong preference from National Highways for early engagement with their AIL team in the early stages of planning for movements of the largest AILs. A need for all transport options for these loads to have been considered is also set out, which is expanded on in the following paragraph:

Water Preferred Policy Guidelines Paragraph 3.4.2

"If the use of a non-established port or waterway is a potential option the applicant will be expected to present a high level review to assess viability. The review is to include a comparison of the costs of both road and water options using the water pro-forma. This high level review will help to identify if there are any obvious reasons why the water option should not be used and keep any investigative costs to a minimum."

1.2.10 Paragraph 3.7.2 adds the following specification with regards to the direction of assessment:

Water Preferred Policy Guidelines Paragraph 3.7.2

"Where the applicant is applying to move a wide and heavy load by road and there is a water option the onus is on them to show why it should not be used."

1.2.11 To which paragraph 3.7.4 adds:

Water Preferred Policy Guidelines Paragraph 3.7.4

"The [National Highways AIL] team considers each road application individually. Any decision reached to refuse a road move in favour of a waterway or non-established abnormal load port should be on the grounds that movement by water is:

- practical
- environmentally desirable
- economic".

1.2.12 Hence, the assessment for movements of the largest AILs is required to take all transportation options into consideration, including the use of ports and inland waterways. Where potential options for transportation by water are found to exist, these should be utilised where it is practical, economic, and environmentally desirable to do so. Only if all alternatives have been exhausted should a movement of the largest AILs covered by this guidance be undertaken by road.

1.3 Document Aims

1.3.1 This document presents the AIL routeing strategy and aims to cover the following:

- AIL transport requirements anticipated for construction works including tower erection, buried underground cabling, Cable Sealing End (CSE) compound works and delivery of transformers and shunt reactors as part of the Substation construction works.
- The assessment of suitable AIL access routes for the vehicles required for construction works that are the most physically onerous with the most restrictive manoeuvrability; Large Mobile Cranes, Cable Drum Delivery vehicles and Transformer/Shunt Reactor (referred to hereafter as Transformer) Delivery vehicles

- The assessment of access routes for Large Mobile Crane AILs will only cover the section of PARs used; these run between the SRN/MRN and site access points. The assessment of the routes from the service yards to the PARs will be developed after DCO once a contractor is appointed
- The assessment of access routes for the Transformer AILs and Cable Drum AILs via waterways or coastal ports to the required site access points, based on physical/structural constraints, input from Local Highways Authorities/National Highways, Network Rail and historical AIL usage where applicable.

1.3.2 It has been prepared and coordinated by qualified engineers who are competent members of the Institute of Civil Engineers (ICE).

1.3.3 This report is intended to supplement the approach identified within the main body of the Outline CTMP (document reference 7.3) as an appendix which presents feasible access routes for AILs on the Project. Following submission of this document, the Main Works Contractor will be responsible for following standard procedures in order to submit formal movement applications and obtain the necessary permits prior to AIL movements.

2. Methodology

2.1 Assessment Overview

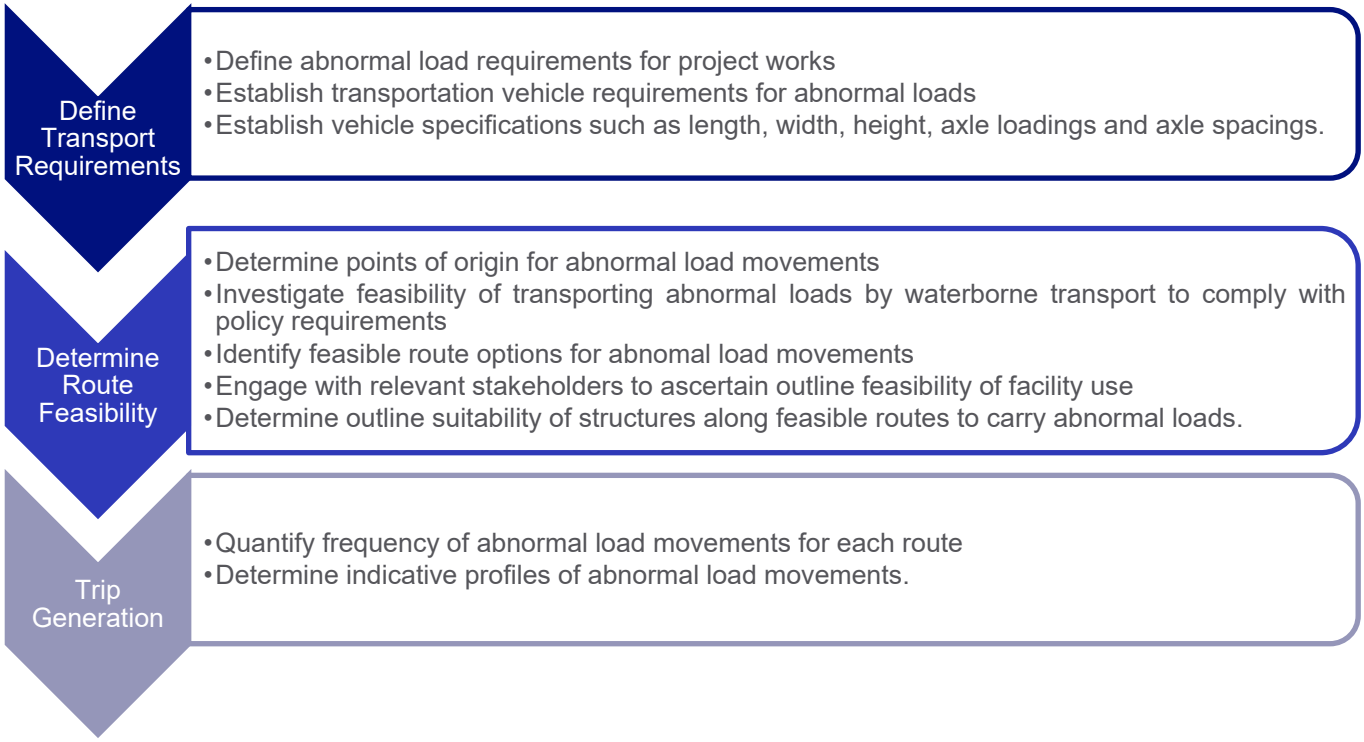
2.1.1 As established in Section 1.3, the purpose of this document is to identify and assess options for suitable AIL routes for Large Mobile Cranes, Cable Drum Delivery vehicles and Transformer Delivery vehicles; the specifications for which are outlined in Section 2.3. To achieve this, it is important to understand both the transportation infrastructure in the region and identify suitable routes to reach site.

2.1.2 Hence, the methodology outlined in the flowchart shown in Figure 2.1 has been utilised. This consists of three components:

1) Definition of Transportation Requirements
2) Determination of Route Feasibility
3) Trip Generation.

2.1.3 The methodology is a bespoke arrangement developed specifically for the Project and sought to form a holistic understanding of the specific logistical challenges and opportunities associated with construction of the Project in the context of regional geography and transportation infrastructure.

Figure 2.1 Methodology flowchart



2.2 Assessment Scope and Assumptions

2.2.1 The primary focus of this assessment is the identification of suitable routeing for AILs and to identify route constraints. Online mapping and survey information has been used to identify the following constraints:

- Level crossings
- Bridges and other identified structures
- Highway constraints due to road geometry
- Height and width constraints.

2.2.2 Many materials required for the project, including conductor drums for buried cables and items of large electrical equipment such as transformers, will be required to be delivered into the UK by water to coastal ports on the basis that these items are not manufactured in the UK. Therefore, it is appropriate for the assessment to consider deliveries from coastal port locations to required site locations.

2.2.3 On this basis, the scope for the assessment was as follows:

- Assessment of AIL vehicles required using project information for the cable drums and transformers as well as other project requirements such as the required cranes
- Identification of points of origin and destination for delivery of abnormal loads for the project work
- Assessment of routeing options for AILs, including engagement with relevant stakeholders such as the Local Highway Authorities, Local Constabulary, National Highways and Network Rail.

Limitations of Assessment

2.2.4 The accuracy of any constraints identified will be limited to the record data available from the asset owners (Local Highway Authorities, National Highways etc.)

2.2.5 Measures proposed to mitigate against identified constraints have been categorised as follows:

- Vegetation removal/cutting back/temporary traffic regulation orders
- Modifications to existing highway features
- Highway mitigation works within existing highway boundary
- Highway mitigation works outside the existing highway boundary.

2.2.6 Constraints have been identified through swept path analysis (SPA) using OS mapping and Autodesk vehicle tracking software. Custom vehicles have been built to simulate the different AIL vehicle types. These may not wholly represent the exact vehicles which are used, however the custom vehicles created are considered as the most onerous of any such variant. The SPA is therefore expected to be developed further post DCO by a haulage specialist once a contractor is appointed and specific details of the vehicles and loads are known. For indicative locations of proposed highway mitigation locations relating to constraints impacting AIL movements, refer to the Indicative Highway Mitigation Plans, appended to the Outline CTMP (document reference 7.3).

2.2.7 Regarding bridges and identified structures, it is worth noting that structural capacity assessments carried out at this stage would be a 'snapshot in time' of structural condition and suitability, and that structures may deteriorate between surveys and the proposed AIL deliveries. This is also true of any carriageway condition.

2.2.8 Asset owners such as LHAs and Network Rail typically carry out a principal/detailed inspection every six years and a simple general/visual inspection every year. It is therefore considered reasonable to assume that, where such record information has been provided by the asset owner, the condition determined from a principal/detailed inspection would remain valid for 6 years, subject to the identification, likelihood of deterioration, and risk level of any defects highlighted. The validity of a structural assessment varies, however, CS451 from the Design Manual for Roads and Bridges (DMRB) (applicable to LHAs) states that structures should have a Structural Review every 12 years.

2.3 Project Transport Requirements

Definition of AILs

2.3.1 The Road Vehicles (Authorisation of Special Types) (General) Order (2003) (UK Statutory Instruments 2003 No. 1998), states that an AIL is a large load which cannot 'without undue expense or risk of damage' be divided into two or more smaller loads for the purposes of being transported by road, and which exceeds limits set out in terms of weight (>44 tonnes), length (>18.65m), and width (>2.9m).

2.3.2 In line with this, the Special Types Enforcement Guide (Driver & Vehicle Standards Agency 2018) defines three categories of AIL vehicles which can be used under a Special Types General Order (STGO); STGO Cat (Category) 1, STGO Cat 2 and STGO Cat 3. AIL vehicles which do not comply with the STGO conditions require a Special Order to travel on the road network. All STGO/SO vehicles must display a plate showing their category, e.g. 'STGO Cat 1', as well as a plate marked 'Special Types Use' which shows the gross, train and axle weights. Advance notice of the planned movements must also be agreed with the Local Highway Authority (LHA)/Bridge Authority/Police and given accordingly.

2.3.3 The conditions for each movement order category are summarised in Table 2.1 below. It should be noted that reference to 'clear working days' in the table excludes Saturdays, Sundays and public holidays.

Table 2.1 Order classification summary for AIL vehicle movements

Characteristic Threshold	STGO Cat 1	STGO Cat 2	STGO Cat 3	SO**
Maximum total vehicle weight	46,000kg (min. 5 axles) 50,000kg (min. 6 axles)	80,000kg	150,000kg	>150,000kg (refer to Table 1.1 for full dimension criteria of SO vehicle classification)
Maximum axle weight	Refer to AW Regulations*	12,500kg	16,500kg	>16,500kg

Characteristic Threshold	STGO Cat 1	STGO Cat 2	STGO Cat 3	SO**
No. clear working days' notice to LHA/Bridge Authority	2	2	5	5
No. clear working days' notice to Police	Dimensions may need to be given	Minimum 2; dimensions may need to be given	Minimum 2; dimensions may need to be given	5

** AW Regulations refers to the Road Vehicles (Authorised Weight) Regulations 1998 (UK Statutory Instruments 1998 No. 3111)*

*** Minimum 10 weeks' notice to National Highways required with a completed Special Order application form (Form BE16)*

Types of AILs and Construction Requirements for the Project

2.3.4 The AIL project requirements anticipated for each construction activity are detailed in the following sections, with a summary of the largest AIL vehicles anticipated for each construction activity within Table 2.2 below.

Table 2.2 AIL transport requirements for project construction

Construction Works	AIL Transport Requirements
Overhead line construction	Large Mobile Crane, Piling Rig
Underground cabling works (including CSE compounds)	Cable Drum Delivery vehicle, Horizontal Directional Drilling (HDD) Rig, Piling Rig
Substation works	Transformer Delivery vehicle (including other associated electrical equipment), Piling Rig

Overhead Line Construction

2.3.5 For the construction of the overhead lines, AILs are proposed to be used for the delivery of the Large Mobile Cranes (Figure 2.2) and the Piling Rigs. The delivery of steelwork to construct the pylons will not be an AIL movement as they will be delivered to site in a standard Low Loader HGV and assembled at each working area.

Large Mobile Crane

2.3.6 The Large Mobile Crane AIL will use the PARs to enter and exit the site access points. However, once on site, the vehicle will utilise the haul roads to travel within the site. They will then exit the site onto the PAR, which is considered an AIL movement, once the required works are finished. Hence, there is one AIL movement upon entry and one upon exit, totalling two AIL movements per crane delivery.

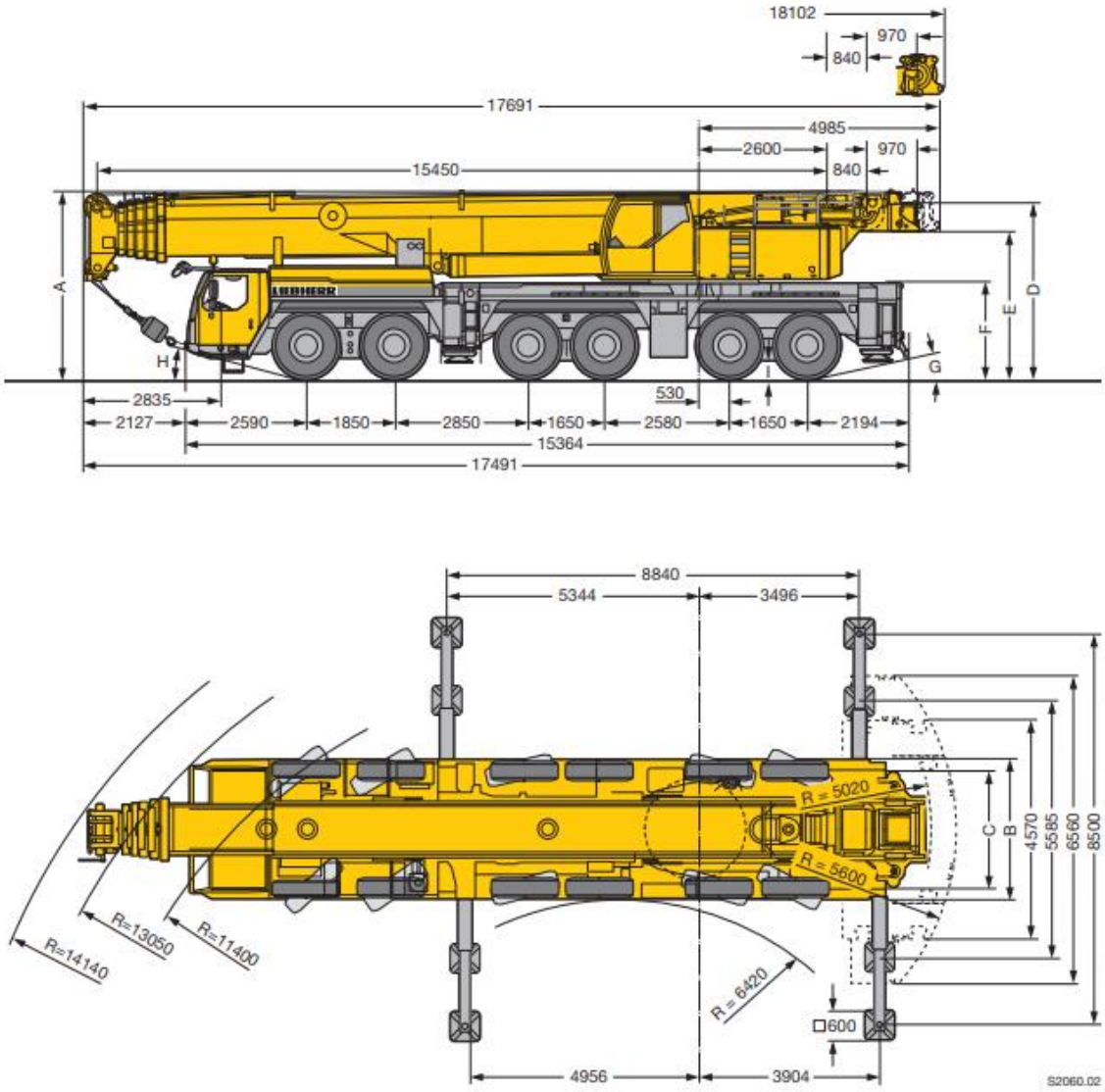
Figure 2.2 Large Mobile Crane (Liebherr LTM 1250-6.1)

2.3.7 The typical Large Mobile Crane AIL specifications are noted as follows:

- Overall length of approximately 17m
- Overall width of 3.0m
- Overall body height of 4.0m
- Max track width of 3.0m.

2.3.8 Figure 2.3 shows the indicative dimensions for a Large Mobile Crane (Liebherr LTM 1250-6.1) vehicle. Unless stated otherwise, dimensions are in mm.

Figure 2.3 Large Mobile Crane (Liebherr LTM 1250-6.1) – typical dimensions



	Maße · Dimensions · Encombrement · Dimensioni · Dimensiones · Размеры mm									
	A	A 150 mm*	B	C	D	E	F	G	H	I
385/95 R 25 (14.00 R 25)	3950	3800	3000	2612	3705	3098	2015	10°	12°	335
445/95 R 25 (16.00 R 25)	4000	3850	3000	2552	3755	3148	2065	12°	14°	385
525/80 R 25 (20.5 R 25)	4000	3850	3240	2702	3755	3148	2065	12°	14°	385

* abgesenkt · lowered · abaissé · abbassato · suspensión abajo · шасси осажено

2.3.9 The estimated gross vehicle weight is approximately 72,000kg with the maximum axle load of 12,000kg per six axles, classifying it as a Category B Mobile Crane in accordance with paragraph 2.1 of the Special Types Enforcement Guide (Driver and Vehicles Standards Agency 2018). Therefore, two working days' notice must be given to the LHAs/bridge authorities. Given the weight of the vehicle is >80,000kg and the height does not exceed 3m, the vehicle is not Police notifiable as per The Road Vehicles (Authorisation of Special Types) (General) Order 2003 (UK Statutory Instruments 2003 No. 1998). As stated in Table 2.1, the order required for usage of the Large Mobile Crane is STGO Cat 2 (total vehicle weight < 80,000kg, axle weight <12,500kg).

2.3.10 As there are multiple speed limits stated for a Category B Mobile Crane and a STGO Cat 2 AIL vehicle in the Special Types Enforcement Guide (Driver and Vehicles Standards Agency 2018), the lowest have been selected (from STGO Cat 2 conditions in paragraph 1.2 of the guide):

- Motorways at 40mph
- Dual carriageways at 35mph
- Other roads at 30mph.

Piling Rig

2.3.11 A Pilling Rig is also required for the construction of the piled foundations of the pylon towers. An indicative Piling Rig is shown in Figure 2.4.

Figure 2.4 Indicative piling rig

2.3.12 An indicative Piling Rig specification is noted below:

- Overall length of approximately 16.5m
- Overall width of 2.5m
- Overall height of approximately 4.0m
- Weight of approximately 47,000kg.

2.3.13 The Piling Rig will be transported to site on a standard Low Loader and will use the same access points and routes as the Large Mobile Crane. It is likely that the Contractor will design the foundations to accommodate a smaller Piling Rig, which would require a greater number of smaller piles. This approach is advantageous as a smaller Piling Rig is more manageable and incurs lower mobilization costs. As per Table 2.1, the vehicle is classified as STGO Cat 1 in the event it has five axles and total vehicle weight exceeds 46,000kg. For the overhead line works, the worst case AIL vehicle is the Large Mobile Crane.

Underground Cabling Works

2.3.14 The proposed works includes approximately 22km of underground cabling. For the construction of the underground cables, AILs are proposed to be used for the delivery of cable drums in addition to the HDD Rigs. Additionally, Piling Rigs are proposed for construction of the CSE compounds.

Cable Drum AIL Delivery Vehicle

2.3.15 The underground cables will be delivered to site using a typical Cable Drum AIL delivery vehicle as shown in Figure 2.5. Cable drums are to be limited to 4.5m in diameter in order to pass under bridges, which typically have a maximum headroom clearance of 5.03m (16’ 6”) in the UK.

2.3.16 The Cable Drum AIL Delivery vehicle will use the PARs to enter and exit the site accesses for the cable compounds. The movement to and from the site will be classified as an AIL movement.

2.3.17 Once on site, the cables will be unspooled whilst on the trailer and the empty drums are then returned to the port on a Low Loader HGV to be shipped back to the manufacturer. Whilst the vehicle loading for the return trip will be below that of an abnormal load due to the empty drum, overall width vehicle remains 4.5m (>2.9m) therefore still classifying the returning vehicle as an AIL. Both the arrival and return movements would require a Police escort. The Police would also require the weight of the Cable Drum AIL Delivery vehicle and the volume of deliveries.

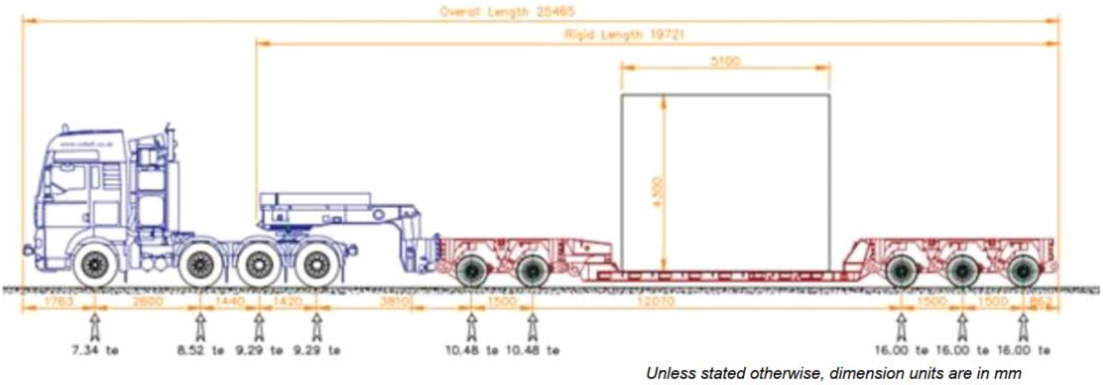
Figure 2.5 Cable Drum AIL delivery vehicle

2.3.18 The typical Cable Drum AIL Delivery vehicle specifications are noted as follows:

- Overall length of approximately 25m
- Overall width of 4.5m
- Overall body height of 5.0m
- Max track width of 2.5m.

2.3.19 Figure 2.6 shows the indicative axle spacing and loading available for the Cable Drum AIL Delivery vehicle at the current design stage.

Figure 2.6 Cable Drum AIL delivery vehicle – typical axle spacing and loading



Unless stated otherwise, dimension units are in mm

2.3.20 The gross vehicle weight is approximately 104,000kg with a maximum axle load of 16,000kg. Therefore, it is classified as an STGO Cat 3 movement as per Table 2.1 (>80,000kg total weight, >12,500kg weight per axle). As it is an STGO Cat 3 classification, two clear working days' notice must be given to the LHAs/bridge authorities in relation to weight. The vehicle will be restricted to the following speed limits:

- Motorways at 40 mph
- Dual carriageways at 35 mph
- Other roads at 30 mph.

HDD Rig

2.3.21 An HDD rig will be required for the undergrounding cabling works. An indicative HDD rig being transported is shown in Figure 2.7.

Figure 2.7 Indicative HDD rig for underground cabling works

2.3.22 An indicative HDD rig delivery vehicle specification is noted below:

- Overall length of approximately 16.55m
- Overall width of 2.65m
- Overall height of 4.1m
- Weight of 45,500kg.

2.3.23 The HDD rig will be transported to site on a standard Low Loader and will use the same access points and routes as the Cable Drum AIL Delivery vehicle.

2.3.24 For the underground cabling works, the worst case AIL vehicle is the Cable Drum AIL Delivery Vehicle.

Piling Rig

2.3.25 A Piling Rig will be required for the underground cabling/CSE compound works. An indicative Piling Rig is shown in Figure 2.4 above with the same specification as noted for overhead line works.

2.3.26 The Piling Rig will be transported to site on a standard Low Loader and will use the same access points and routes as the Cable Drum AIL Delivery vehicle – see above for specification. As Table 2.1, the vehicle is classified as STGO Cat 1 in the event it has five axles and total vehicle weight exceeds 46,000kg. For the underground cabling works, the worst case AIL vehicle is the Cable Drum AIL Delivery vehicle.

Substation Works

2.3.27 The substations and associated works are as listed in Table 2.3 below.

Table 2.3 AIL transport requirements for substation works

Substation	Proposed Works	AILs Required?
Norwich Main	Proposed connection works	No
Bramford	Proposed extension to existing substation	**Yes**
	Proposed connection works	No
East Anglia Connection Node (EACN)	Proposed new substation	**Yes**
	Proposed connection works	No
Tilbury North	Proposed new substation	**Yes**

2.3.28 Access to substations is required for construction, operation, and maintenance, with a permanent access route to be provided to enable 24/7 access.

2.3.29 For the construction of substations, AILs are proposed to be used for the delivery of Super Grid Transformers (SGTs) and shunt reactors (see Figure 2.8) in addition to the Piling Rigs (see Figure 2.4).

Piling Rig

2.3.30 A Piling Rig will be required for substation works. An indicative Piling Rig is shown in Figure 2.4 above with the same specification as noted for overhead line works.

2.3.31 The Piling Rig will be transported to site on a standard Low Loader and will use the same access points and routes as the Transformer AIL Delivery vehicle – see below for specification. As per Table 2.1, the vehicle is classified as STGO Cat 1 in the event it has five axles and total vehicle weight exceeds 46,000kg. For the substation works, the worst case AIL vehicle is the Transformer AIL Delivery vehicle.

Transformer AIL Delivery Vehicle

2.3.32 The Transformer AIL Delivery vehicle will access substations on PARs which allow for access as an unopposed, escorted movement. The vehicle will be required to reach the 2No. substation locations as identified in Table 2.2.

2.3.33 The transformer equipment is manufactured outside of the UK and will be shipped to coastal ports. The Transformer AIL will travel to the ports (unloaded movement) from their respective depot/yard (exact location currently unknown) as two individual AILs. Once at the ports, these two AILs will be joined together into a single AIL (as shown in Figure 2.8 and Figure 2.9) to carry the Transformers and other associated equipment to the appointed substation site locations.

2.3.34 Transport to the site (loaded movement) will be classed as a single AIL movement due to the abnormal loading and the large vehicle length. Following the delivery of the transformer to the appointed substation site, the trailer used to carry the transformer to the site will be taken apart into two AIL vehicles. These will be transported back along the same route used on arrival. Since the length of these shortened vehicles exceeds 18m, the return trip is also classified as (two) AIL movements.

2.3.35 The movement would require a Police escort. The Police would need to be notified of the weight, dimensions of the Transformer AIL Delivery vehicle as well as the volume of deliveries. As the vehicle classifies as SO, 5 clear working days' notice to the Police and Bridge/LHA is required as well as 10 weeks' minimum notice to National Highways with a completed SO application form (Form BE16). Refer to the Aide Memoire for Notification Requirements for the Movement of Abnormal Indivisible Loads (National Highways 2022) in Annex A for more details.

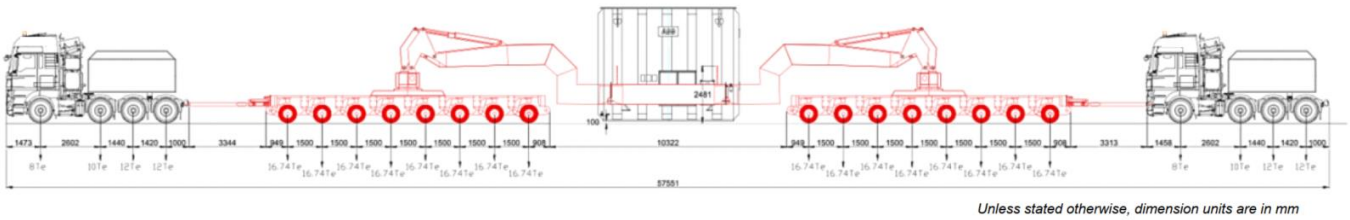
Figure 2.8 Transformer AIL delivery vehicle

2.3.36 The typical Transformer AIL Delivery vehicle specifications are noted as follows:

- Overall length of approximately 60m
- Overall width of 5.3m
- Overall body height of 4.02m
- Max track width of 3.0m.

2.3.37 Figure 2.9 shows the indicative axle spacing and loading available for the Transformer AIL Delivery vehicle at the current design stage.

Figure 2.9 Transformer AIL delivery vehicle – typical axle spacing and loading



2.3.38 The gross vehicle weight of the Transformer AIL Delivery vehicle is approximately 352,000kg with a maximum axle load of 16,740kg. Therefore, it is classified as an SO movement as per Table 2.1 (>150,000kg total weight, >16,500kg weight per axle).

3. Routeing

3.1 Rail

3.1.1 The transportation of project cargo that necessitates an AIL delivery vehicle on the road network is considered unsuitable for rail transport. This is due to the unique logistical challenges and constraints associated with such loads. Consequently, the option of routeing these goods from rail sidings has been discounted, as detailed in the Multi-Mode Transport Report, which is appended to the TA (document reference 7.11).

3.2 Ports and Waterways

3.2.1 As discussed in Section 1.2, the AIL routeing strategy must consider both ports and inland waterways. Project cargo, including conductor drums for buried cables and items of large electrical equipment such as transformers, will be required to be delivered into the UK by water to coastal ports on the basis that these items are not available from UK manufacturers.

3.2.2 The findings of a waterborne transport assessment as part of the Multi-Mode Transport Report, appended to the TA (document reference 7.11), identified the following coastal ports as viable for handling abnormal loads:

- Port of King's Lynn
- Port of Great Yarmouth
- Port of Lowestoft
- Port of Ipswich
- Harwich International Port
- Port of Felixstowe
- London Gateway Port
- Port of Tilbury

3.2.3 Furthermore, the multi-mode waterborne transport assessment discounted the use of inland waterways from access consideration due to routes constrained by physical size and depth of water, and limited navigability of the inland waterways near the scheme alignment. Therefore, the only option available to transport abnormal loads for cable drum and transformer deliveries from coastal ports to site will be the use of the road network.

3.3 Start and End Locations

Large Mobile Crane AILs

3.3.1 Start locations for the Large Mobile Crane AILs will be coming from various depots around the UK. These exact locations will be known once a contractor/haulage company is appointment at a later stage of the project. However, it is known that the Large Mobile Crane AILs will use the SRN which is suitable for AILs as discussed with National Highways, before moving along the proposed PARs which run along the local road network.

3.3.2 The Large Mobile Crane AILs are required for the construction of the pylon towers and will be delivered to the site access bellmouth.

Cable Drum and Transformer AILs

3.3.3 For the delivery of large electrical project cargo, including 400 kV transformers and underground cables, it is understood that these items are not presently manufactured in the UK, and hence must be delivered by ship from overseas suppliers to coastal ports near the project site location. Prior assessment work as part of the Multi-Mode Transport Report, appended to the TA (document reference 7.11), identified eight coastal ports, listed in Section 3.2, as suitable to handle abnormal loads.

3.3.4 Given the geographic location of proposed underground cabling works (cable drums required) and substation works (transformers required), the Ports of King's Lynn, Great Yarmouth and Lowestoft are not considered as start locations for the Cable Drum and Transformer AILs. This is to minimise impact to the road network and comply with paragraph 2.2.4 of the Water Preferred Policy (see Section Water Preferred Policy of this document) which states the loads should come from the nearest coastal port.

3.3.5 The remaining coastal port options listed below provide sufficient routeing options for the AILs to reach their destinations and will therefore be considered as the points of origin for the cable drum and transformer movements:

- Port of Ipswich
- Harwich International Port
- London Gateway Port
- Port of Tilbury

3.3.6 Further details on the port suitability assessment are given in the Multi-Mode Transport Report.

3.3.7 Based on the project construction requirements, the Cable Drum and Transformer AIL Delivery vehicles will use the road network from the coastal ports to reach the following site end locations:

- Bramford Substation
- Holton St. Mary Compound
- Langham Hall Compound
- Birchwood Road Compound

- EACN Substation
- Great Horkesley Compound
- Fairstead Compound
- Stanford Road/Heath Road
- Tilbury North Substation (Options via Buckingham Hill Road or Brentwood Road)

3.3.8 The end locations listed above in 3.3.7 are approximate descriptions of each Cable Drum/Transformer delivery destination. For the purpose of this document, these destination references are used when referring to Cable Drum/Transformer AIL route options. Refer to Table 5.3/Table 5.4/Table 7.2 for corresponding site compound references correlating to the main body of the Outline CTMP (document reference 7.3).

3.4 Headroom Clearances

3.4.1 The maximum heights of AIL vehicles required for the scheme are shown in Table 3.1. The maximum vehicle heights shown include the height of the load and the height of the trailer.

Table 3.1 AIL maximum vehicle heights

AIL Vehicle	Maximum Vehicle Height (m)
Large Mobile Crane AIL	4.0
Cable Drum AIL Delivery vehicle	5.0
Transformer AIL Delivery vehicle	4.02

Headroom – Overhead Bridges and Gantries

3.4.2 A maximum headroom of 5.03m (16’ 6”) is typically maintained within the UK road network as per DMRB (CD127) however, the actual headroom measurements are usually displayed on structures such as gantries and bridges.

Headroom – Level Crossing

3.4.3 At-grade level crossings may also pose a potential headroom restriction due to the electrified overhead lines. Similar to the overhead road structures on the UK road network, a safe height of 5.03m (16’ 6”) is usually maintained (as noted in The Highway Code, Rule 291). However, the actual safe crossing height at each level crossing can be found on signs located ahead of them.

3.4.4 It is important to note that even if a tall load falls below the safe height threshold, permission to pass underneath is not automatically granted due to the risk of flashover – consultation with Network Rail is currently ongoing to seek agreement to pass under the Overhead lines.

Headroom – Overhead Utilities

3.4.5 Beyond the headroom restrictions imposed by structures like gantries, bridges, and level crossings, there are also limitations due to overhead services such as telephone lines and local power distribution lines. Given that the safe height clearance on the UK road network is 5.03m (16' 6"), it is assumed that utilities crossing the road are at this height.

3.4.6 In cases where these services restrict sufficient clearance for taller vehicles, there are potential mitigations. For shorter lengths of constraint, it may be feasible to raise or bury these overhead lines. However, for longer routes, the cost and impact of the mitigations works may be unpractical hence the routes will be discounted. In all cases, any necessary arrangements for these modifications must be coordinated by the haulage company with the responsible undertakers.

3.5 Structural Capacity

3.5.1 The load carrying capacity of roads and bridges depends on the axle loading and the axle arrangements. When assessing structural capacity for abnormal loading, a case-by-case approach is necessary, involving coordination with Network Rail, National Highways, and the LHA.

Network Rail

3.5.2 Engagement with Network Rail noted the following regarding structural assessment for bridges and level crossings:

The bridge and level crossings will require abnormal load assessments to establish the allowable capacity of each asset with the respective frequency of use and particularly, the wheels' cleanliness at the level crossings (to avoid clogging rail tracks with site debris or mud and prevent derailment); and

Impact assessments, signal sighting assessments and structural assessments are to be provided for any works/activities that have a potential to affect Network Rail assets unless otherwise agreed with the Designated Project Engineer (DPE).

3.5.3 Based on the above, each of the AIL routes with Network Rail affected assets have been identified and notified to Network Rail to obtain structural information. With the structural information received, a review has been undertaken to assess the suitability of the assets in supporting the proposed AIL vehicles.

3.5.4 A total of 3No. rail structures were identified as requiring further assessment by the Project team (2No. owned by Network rail, 1No. situated on private land but bridges over the railway).

3.5.5 The privately-owned structure that has been assessed is located by Rays Cottage/Tabrums Farm, Margaretting, Essex. The results of this assessment are that, at the time of assessment, the bridge can support HGVs with appropriate mitigation measures but cannot support the Large Mobile Crane AIL. Therefore, in order to facilitate AIL access for the Crane to that particular section of the route, an additional access route was added (PAR reference H32-A2 – see Section 4.1).
This assessment has been approved and signed off by Network Rail.

3.5.6 The remaining 2No. assessments commenced prior to DCO submission; these are located in Essex along Church Road, Brentwood and Mountnessing Road, Billericay.

3.5.7 Details of Network Rail assets which have been investigated through stakeholder engagement can be found in the schedule within Annex B.

LHAs and National Highways

3.5.8 For the proposed AIL routes, affected structures that have been identified were notified to the Local Highways Authorities and National Highways for them to conduct a high-level review, confirming any that are of concern and require further assessment.

3.5.9 With the provision of structural information by the Local Highways Authorities and National Highways, structural assessments will be undertaken as necessary to confirm suitability of those structures to carry the AIL vehicles for each of the routes.

3.5.10 Discussions with National Highways and the Local Highway Authorities regarding AIL route feasibility began in Q2 (2nd quarter) of 2024. Ongoing engagement following this has provided a platform for stakeholders to raise structural concerns, amongst other matters, along the proposed routes. Input from asset owners to complete a high-level review of structural suitability was requested in Q1, 2025. This was progressed with requests for specific asset information throughout Q1 and Q2 of 2025, where appropriate.

3.5.11 Details of structures which have been the subject of stakeholder engagement can be found in the schedule within Annex B.

4. Route Assessment

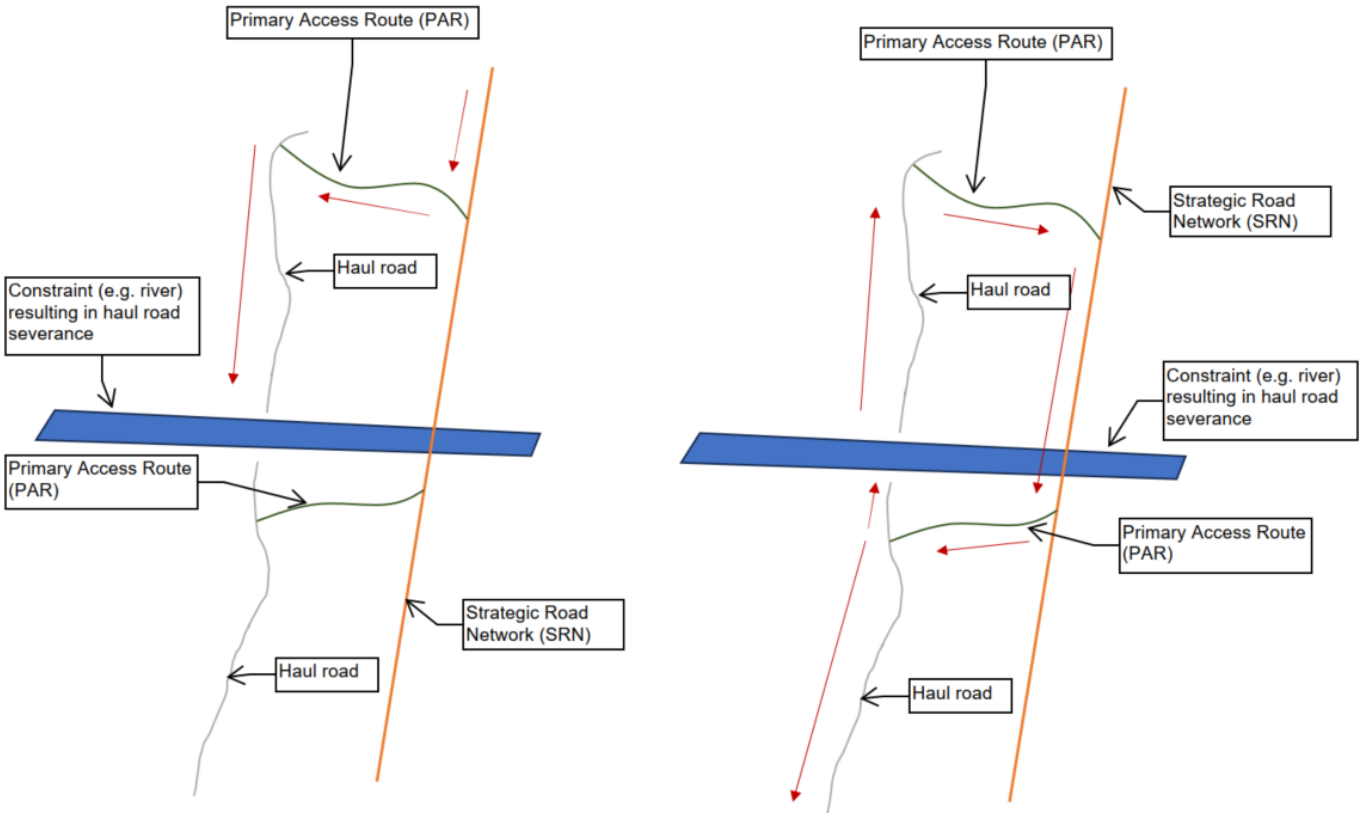
4.1 Large Mobile Crane AILs

4.1.1 The Large Mobile Crane AIL will utilise prescribed PARs as set out in the main body of the Outline CTMP (document reference 7.3). For indicative movements per PAR, refer to Section 5.1 of this document.

4.1.2 They will arrive at the start of the section of haul road and remain on the internal haul road until they approach a severance.

4.1.3 To cross over the severed haul road, the Large Mobile Crane AIL will use the PAR to access the SRN and travel on until it reaches the next PAR which it will travel along to re-access the haul road – see Figure 4.1.

Figure 4.1 Large Mobile Crane AIL movement at a haul road severance. Left: Large Mobile Crane AIL using PAR to access haul road north of severance. Right: Large Mobile Crane AIL using strategic road network to cross over the severance to southern section of haul road



4.1.4 For a full list of PAR IDs, refer to the main body of the Outline CTMP (document 7.3).

4.1.5 Further details on the routes including site access point (bellmouth) references, constraints identified, and indicative mitigation measures can be found on the Indicative Highway Mitigation Plans, appended to the Outline CTMP (document reference 7.3).

4.2 Cable Drum and Transformer AILs

4.2.1 This section provides an overview of each of the routes considered for the Cable Drum and Transformer AIL Delivery vehicles.

4.2.2 AIL route IDs have been assigned based on final location and number of options per destination (e.g. for Bramford Substation, route IDs begin with 'H11-' followed by '-AIL1' (option 1), 'AIL2' (option 2), etc.).

4.2.3 Subsections are organised by final location. Details of the routes taken forward for further discussion and assessment are presented within each subsection including route plans and a summary of the feedback and concerns from stakeholder engagement with the relevant LHAs, Local Constabulary and National Highways. Historical AIL usage is included where appropriate.

4.2.4 Final locations are referred to with approximate descriptions (e.g. Bramford Substation). For corresponding compound site access point references, refer to Table 5.3/Table 5.4/Table 7.2.

4.2.5 Inset maps corresponding to the route plans presented throughout Section 4.2 are shown in Annex C.

4.2.6 Routes which have been discounted are listed in Annex D with reasoning as to why they are not being considered further.

4.2.7 For the remaining routes, access options to reach each destination point are kept open where feasible at this stage of the project.

4.2.8 As a summary, all routes have a hybrid option for the Port of origin, except for Bramford Substation which will originate from the Port of Ipswich.

Bramford Substation

4.2.9 There are 4No. route options to reach the Bramford Substation site as shown in Table 4.1 below.

Table 4.1 AIL route options to Bramford Substation site

AIL Route ID	Start Location (Port)	Final Location	Distance (km)*	Affected LHA
H11-AIL1	Ipswich (via Sproughton)	Bramford Substation	15 (W) / 30 (E)	Suffolk
H11-AIL2	Ipswich (via A12)		21 (W) / 36 (E)	Suffolk
H11-AIL3	Ipswich (via Claydon)		21 (W) / 36 (E)	Suffolk
H11-AIL4	Felixstowe		33	Suffolk

** Distances marked (W) and (E) represent the AIL route from the West Bank Quay terminal and East Bank Quay terminal respectively at the Port of Ipswich. Both options are kept open at the current stage of the project due to stakeholder feedback regarding routes originating from Ipswich.*

4.2.10 National Highways have commented that the Port of Ipswich is the preferred port of origin for routes to Bramford Substation (route options H11-AIL1, H11-AIL2, H11-AIL3.

4.2.11 Routeing to Bramford Substation has also been historically considered and assessed in other projects, such as Bramford to Twinstead Reinforcement (BTNO), another National Grid project. There are ongoing discussions within BTNO regarding AIL routeing; the Port of Felixstowe, whilst not preferred due to distance/policy requirements (see Section 1.2), is still a potential option. This route option (H11-AIL4) has been considered, as set out in Annex D, however has been discounted on policy grounds.

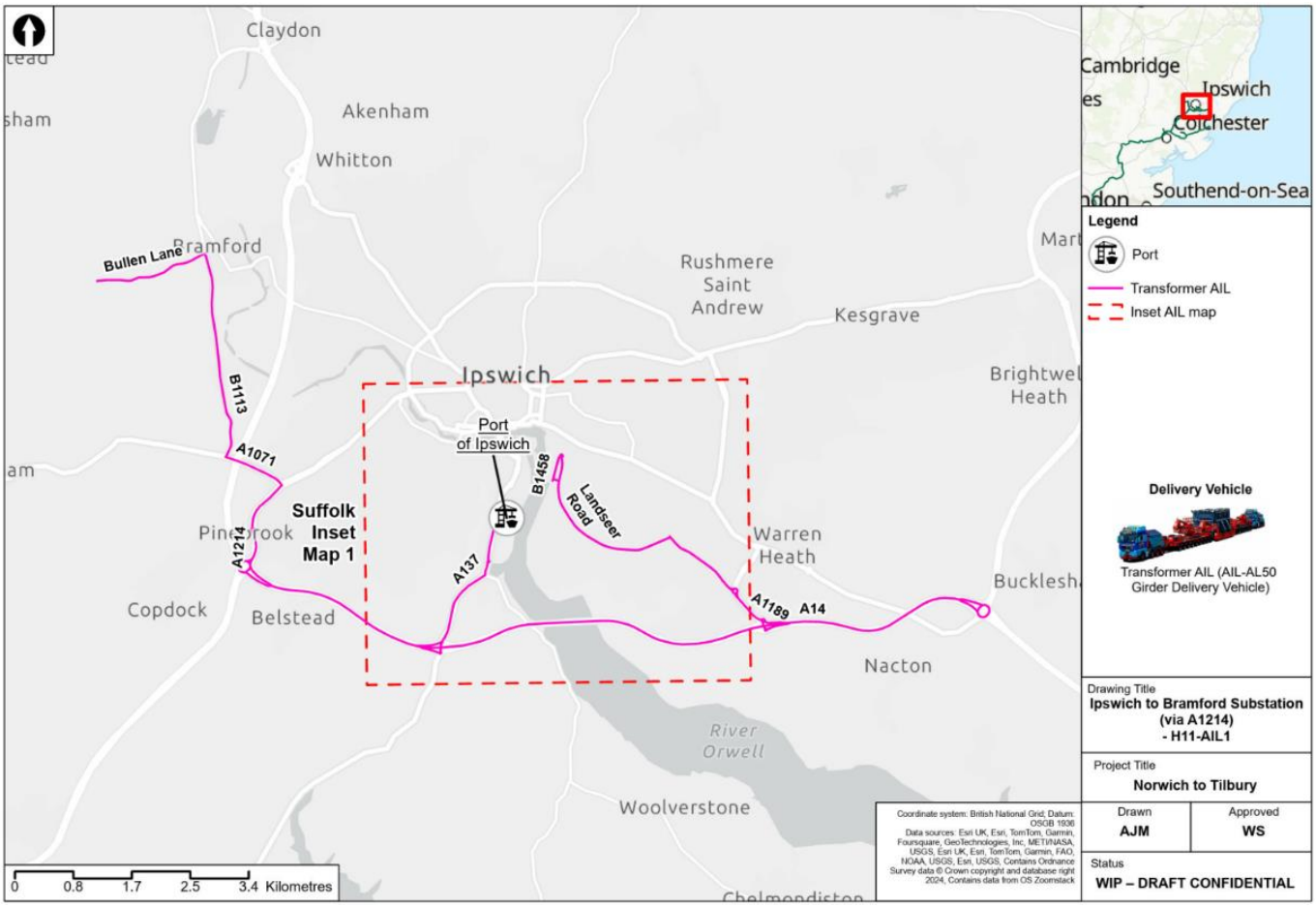
4.2.12 Furthermore, physical and structural constraints along routes H11-AIL2 and H11-AIL3 deem H11-AIL1 to be the preferred option. Details on discounted routes to Bramford Substation (H11-AIL2, H11-AIL3, H11-AIL4) can be found in Annex D, however discussions are ongoing.

H11-AIL1 – Ipswich to Bramford Substation (via Sproughton)

4.2.13 The proposed route, a distance of 15km (from the West Bank Quay) / 30km (from the East Bank Quay), will be for the Transformer AIL Delivery vehicle only and will take the route as shown in Figure 4.2.

4.2.14 The Transformer AIL Delivery vehicle using this route is classified as an SO movement.

Figure 4.2 H11-AIL1 Ipswich to Bramford Substation (via Sproughton)



4.2.15 Suffolk County Council noted there is an STGO Category 2 restriction on Ostrich Creek Bridge coming out of Port of Ipswich from the West Bank Quay Terminal. Historically an overbridge has been temporarily installed and dismantled for AIL movements, but this requires a road closure for the weekend. It has been suggested that departing from the East Bank Quay via Orwell Bridge is used as an alternative way out of Port of Ipswich.

4.2.16 Furthermore, it was raised in stakeholder discussions that Orwell Bridge is susceptible to strong winds and is often subject to closure in extreme weather conditions. It should be noted that this does not eliminate Orwell Bridge/East Bank Quay as an option but is something to be considered when planning AIL movements.

4.2.17 The structural assessment process for Ostrich Creek Bridge commenced prior to DCO submission (ID 150 as per structures schedule in Annex B). Discussions regarding other affected structures along this route are ongoing with the LHAs and National Highways. Engagement with Network Rail has concluded none of their assets along the route require further structural assessment by the Project team at this stage.

4.2.18 Suffolk County Council raised concerns that Sproughton has been historically sensitive with AIL routeing and there is an environmental weight limit which would need to be revoked.

4.2.19 Based on the feedback received, route H11-AIL1 has been taken forward for further discussion and assessment.

4.2.20 For information on discounted routes H11-AIL2, H11-AIL3 and H11-AIL4, refer to Annex D.

Holton St Mary Compound

4.2.21 There are 2No. route options to reach the Holton St. Mary Compound site as shown in Table 4.2 below.

Table 4.2 AIL route options to Holton St. Mary Compound site

AIL Route ID	Start Location (Port)	Final Location	Distance (km)*	Affected LHA
H13-AIL1	Ipswich	Holton St. Mary	29 (W) / 44 (E)	Suffolk, Essex
H13-AIL2	Harwich		42	Suffolk, Essex

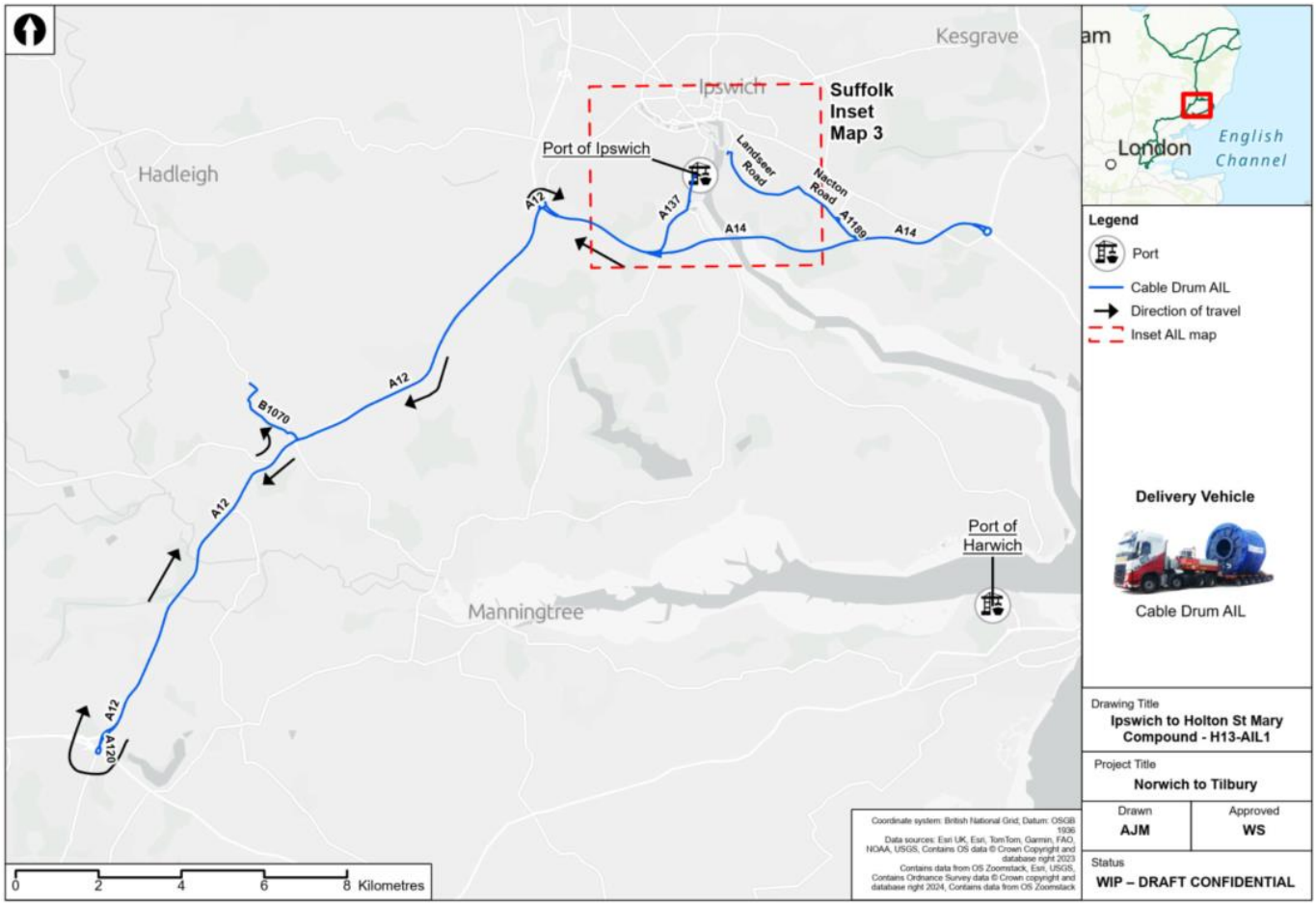
** Distances marked (W) and (E) represent the AIL route from the West Bank Quay terminal and East Bank Quay terminal respectively at the Port of Ipswich. Both options are kept open at the current stage of the project due to stakeholder feedback regarding routes originating from Ipswich.*

H13-AIL1 – Ipswich to Holton St Mary Compound

4.2.22 The proposed route, a distance of 29km (from the West Bank Quay) / 44km (from the East Bank Quay), will be for the Cable Drum AIL Delivery vehicle only and will take the route as shown in Figure 4.3.

4.2.23 The Cable Drum AIL Delivery vehicle using this route is classified as an STGO Category 3 movement.

Figure 4.3 H13-AIL1 Ipswich to Holton St. Mary Compound



4.2.24 Suffolk County Council and Essex Constabulary had the same concerns over Ostrich Creek Bridge (restricted to STGO Category 2) and Orwell Bridge when coming out of the Port of Ipswich as noted above route H11-AIL1. The structural assessment process for Ostrich Creek Bridge commenced prior to DCO submission (ID 150 as per structures schedule in Annex B). Discussions regarding other affected structures along this route are ongoing with the LHAs and National Highways.

4.2.25 Engagement with Network Rail has concluded none of their assets along the route require further structural assessment by the Project team at this stage.

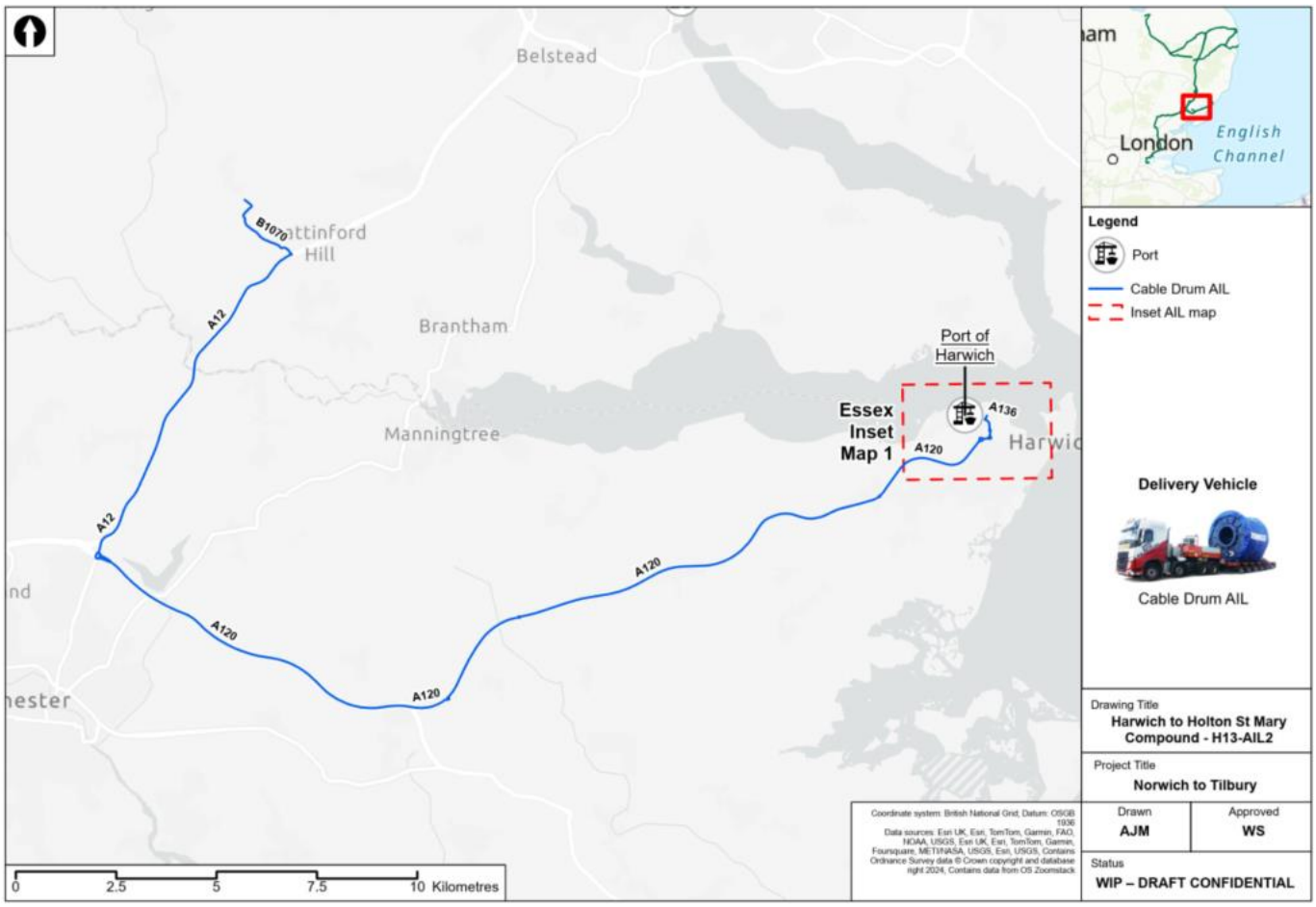
4.2.26 Based on the feedback received, route H13-AIL1 has been taken forward for further discussion and assessment.

H13-AIL2 – Harwich to Holton St Mary Compound

4.2.27 The proposed route, a distance of 42km, will be for the Cable Drum AIL Delivery vehicle only and will take the route as shown in Figure 4.4.

4.2.28 The Cable Drum AIL Delivery vehicle using this route is classified as an STGO Category 3 movement.

Figure 4.4 H13-AIL2 Harwich to Holton St. Mary Compound



4.2.29 Suffolk County Council raised no initial concerns regarding structural capacity of bridges along the part of this route that falls in Suffolk, however structural checks and discussions are ongoing.

4.2.30 Key structures in the Harwich area the Cable Drum AIL Delivery vehicle will need to use on this route are Phoenix Bridge (rail overbridge near the Port) and the Dovercourt Dock River crossing (between the Parkeston and St. Nicholas roundabouts). Since both locations are used often by large loads, these are not considered significant concerns but would need to be assessed for the specific loading of the proposed vehicles.

4.2.31 Feedback from Essex County Council has raised the need for structural assessments of these bridges as well as a culvert on the A120 near Parkeston Roundabout (IDs: 206, 207, 208 as per structures schedule in Annex B). Discussions are ongoing with the LHA to progress assessments of these as well as other affected structures along this route.

4.2.32 Discussions with National Highways are also ongoing regarding structures along this route. Engagement with Network Rail has concluded none of their assets along the route require further structural assessment by the Project team at this stage.

4.2.33 Based on the feedback received, route H13-AIL2 has been taken forward for further discussion and assessment.

Langham Hall Compound

4.2.34 There are 2No. route options to reach the Langham Hall Compound site as shown in Table 4.3 below.

Table 4.3 AIL route options to Langham Hall Compound site

AIL Route ID	Start Location (Port)	Final Location	Distance (km)*	Affected LHA
H14-AIL1	Ipswich	Langham Hall	27 (W) / 42 (E)	Suffolk, Essex
H14-AIL2	Harwich		34	Essex

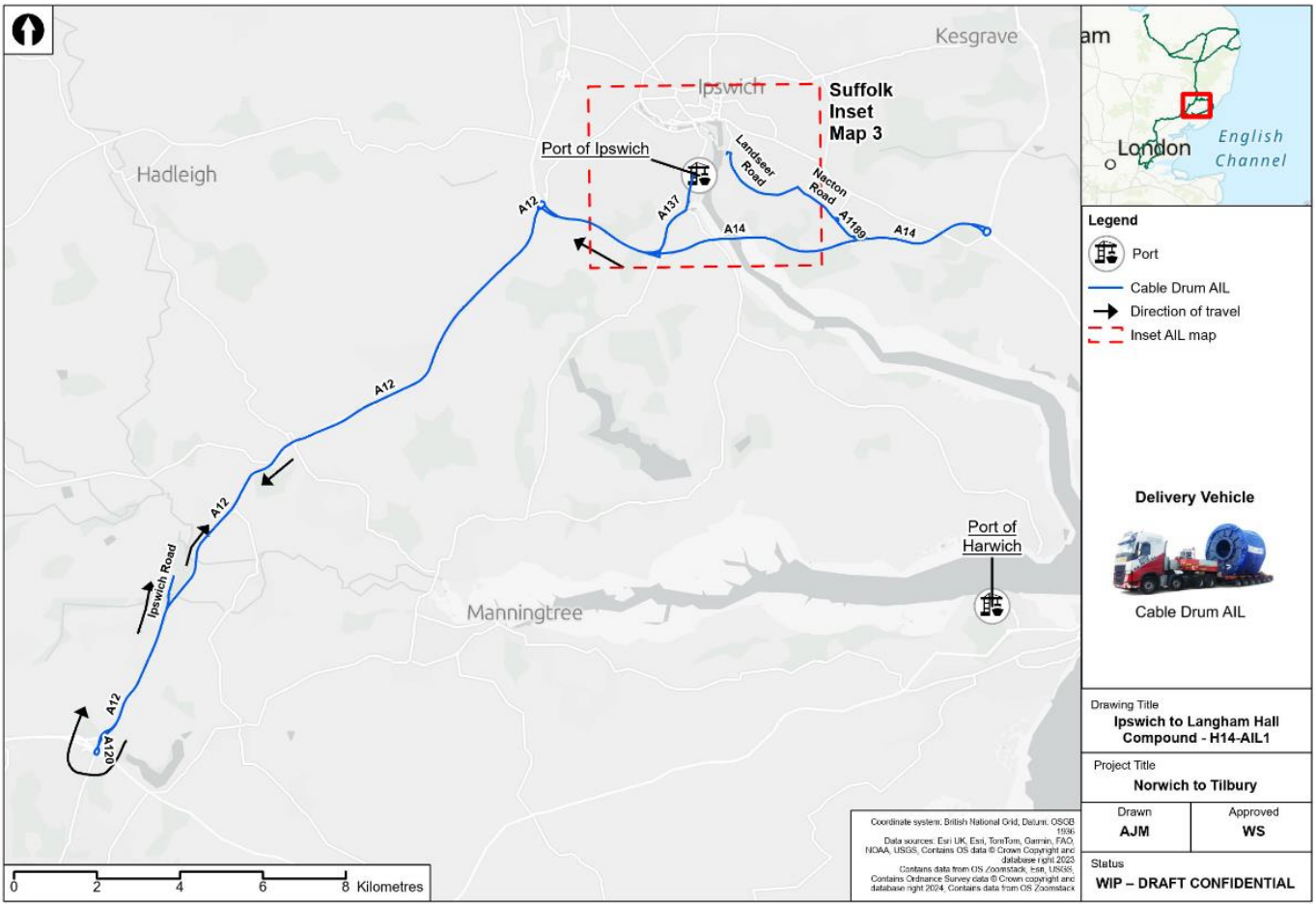
** Distances marked (W) and (E) represent the AIL route from the West Bank Quay terminal and East Bank Quay terminal respectively at the Port of Ipswich. Both options are kept open at the current stage of the project due to stakeholder feedback regarding routes originating from Ipswich.*

H14-AIL1 – Ipswich to Langham Hall Compound

4.2.35 The proposed route, a distance of 27km (from the West Bank Quay) / 42km (from the East Bank Quay), will be for the Cable Drum AIL Delivery vehicle only and will take the route as shown in Figure 4.5.

4.2.36 The Cable Drum AIL Delivery vehicle using this route is classified as an STGO Category 3 movement.

Figure 4.5 H14-AIL1 Ipswich to Langham Hall Compound



4.2.37 Suffolk County Council and Essex Constabulary had the same concerns over Ostrich Creek Bridge (restricted to STGO Category 2) and Orwell Bridge when coming out of the Port of Ipswich as noted above for route H11-AIL1. The structural assessment process for Ostrich Creek Bridge commenced prior to DCO submission (ID 150 as per structures schedule in Annex B). Feedback from Essex County Council has also raised concerns over the condition of a bridge over Black Brook on Ipswich Road, Colchester (ID 162 as per structures schedule in Annex B). Discussions are ongoing with the LHA to progress the review of this as well as for other affected structures along this route and with National Highways.

4.2.38 Engagement with Network Rail has concluded none of their assets along the route require further structural assessment by the Project team at this stage.

4.2.39 Essex County Council do not consider the Langham Hall Compound area as one which is commonly used or requested for AIL movements, hence further investigation is to be carried out to assess capacity to carry the Cable Drum AIL Delivery vehicle.

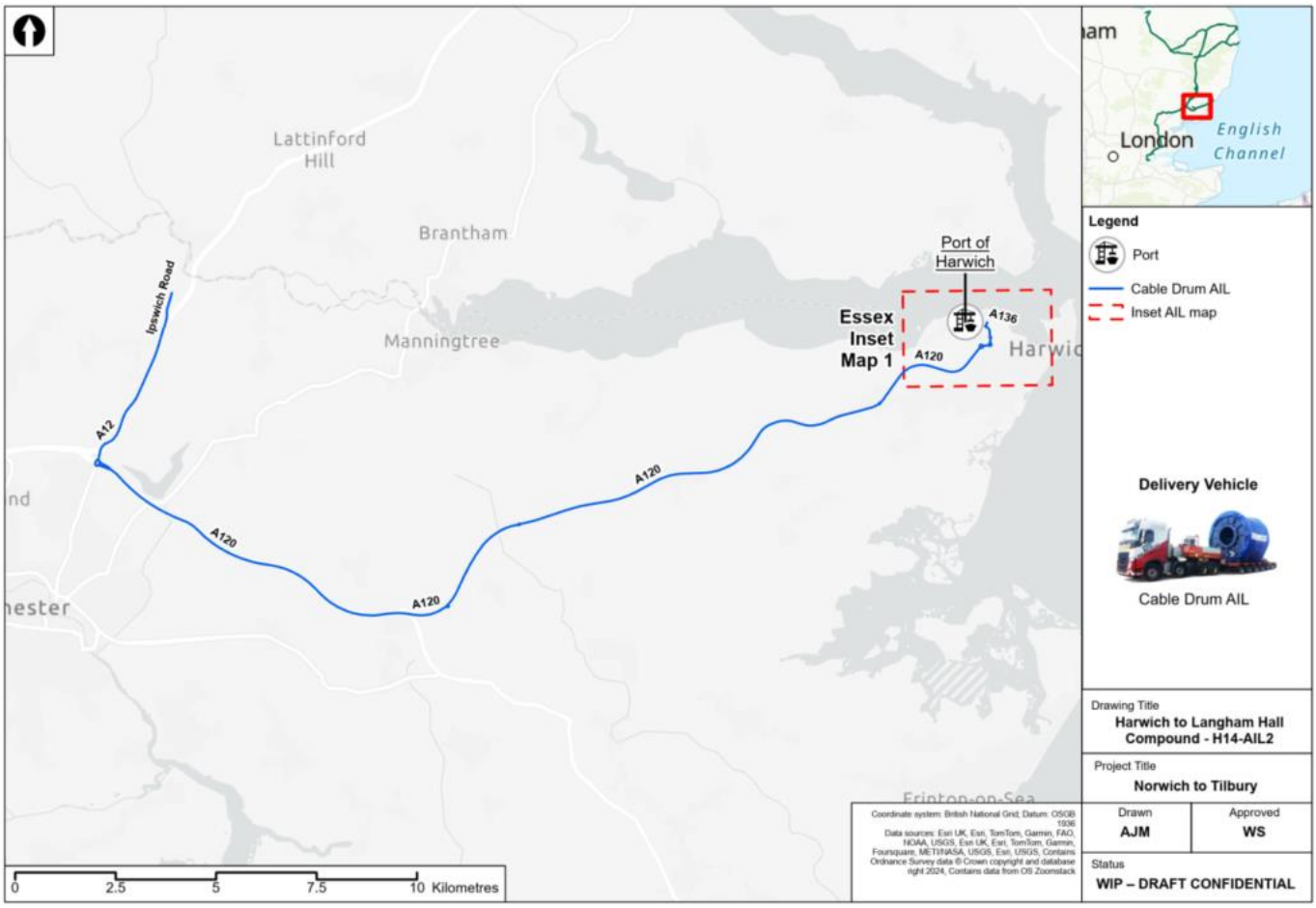
4.2.40 Based on the feedback received, route H14-AIL1 has been taken forward for further discussion and assessment.

H14-AIL2 – Harwich to Langham Hall Compound

4.2.41 The proposed route, a distance of 34km, will be for the Cable Drum AIL Delivery vehicle only and will take the route as shown in Figure 4.6.

4.2.42 The Cable Drum AIL Delivery vehicle using this route is classified as an STGO Category 3 movement.

Figure 4.6 H14-AIL2 Harwich to Langham Hall Compound



4.2.43 Key structures in the Harwich area the Cable Drum AIL Delivery vehicle will need to use on this route are Phoenix Bridge (rail overbridge near the Port) and the Dovercourt Dock River crossing (between the Parkeston and St. Nicholas roundabouts). Since both locations are used often by large loads, these are not considered significant concerns but would need to be assessed for the specific loading of the proposed vehicles.

4.2.44 Feedback from Essex County Council has raised the need for structural assessments of these bridges as well as a culvert on the A120 near Parkeston Roundabout (IDs: 206, 207, 208 as per structures schedule in Annex B). Feedback from Essex County Council has also raised concerns over the condition of a bridge over Black Brook on Ipswich Road, Colchester (ID 162 as per structures schedule in Annex B). Discussions are ongoing with the LHA to progress assessments of these as well as other affected structures along this route.

4.2.45 Discussions with National Highways are also ongoing regarding structures along this route. Engagement with Network Rail has concluded none of their assets along the route require further structural assessment by the Project team at this stage.

4.2.46 Essex County Council do not consider the Langham Hall Compound area as one which is commonly used or requested for AIL movements, hence further investigation is to be carried out to assess capacity to carry the Cable Drum AIL Delivery vehicle.

4.2.47 Essex Constabulary historically have been able to manage areas along the Harwich route (H14-AIL2) compared with the Ipswich route (H14-AIL1).

4.2.48 Based on the feedback received, route H14-AIL2 has been taken forward for further discussion and assessment.

Birchwood Road Compound

4.2.49 There are 2No. route options to reach the Birchwood Road Compound site as shown in Table 4.4 below.

Table 4.4 AIL route options to Birchwood Road Compound site

AIL Route ID	Start Location (Port)	Final Location	Distance (km)*	Affected LHA
H16-AIL1	Ipswich	Birchwood Road	27 (W) / 42 (E)	Suffolk, Essex
H16-AIL2	Harwich		50	Suffolk, Essex

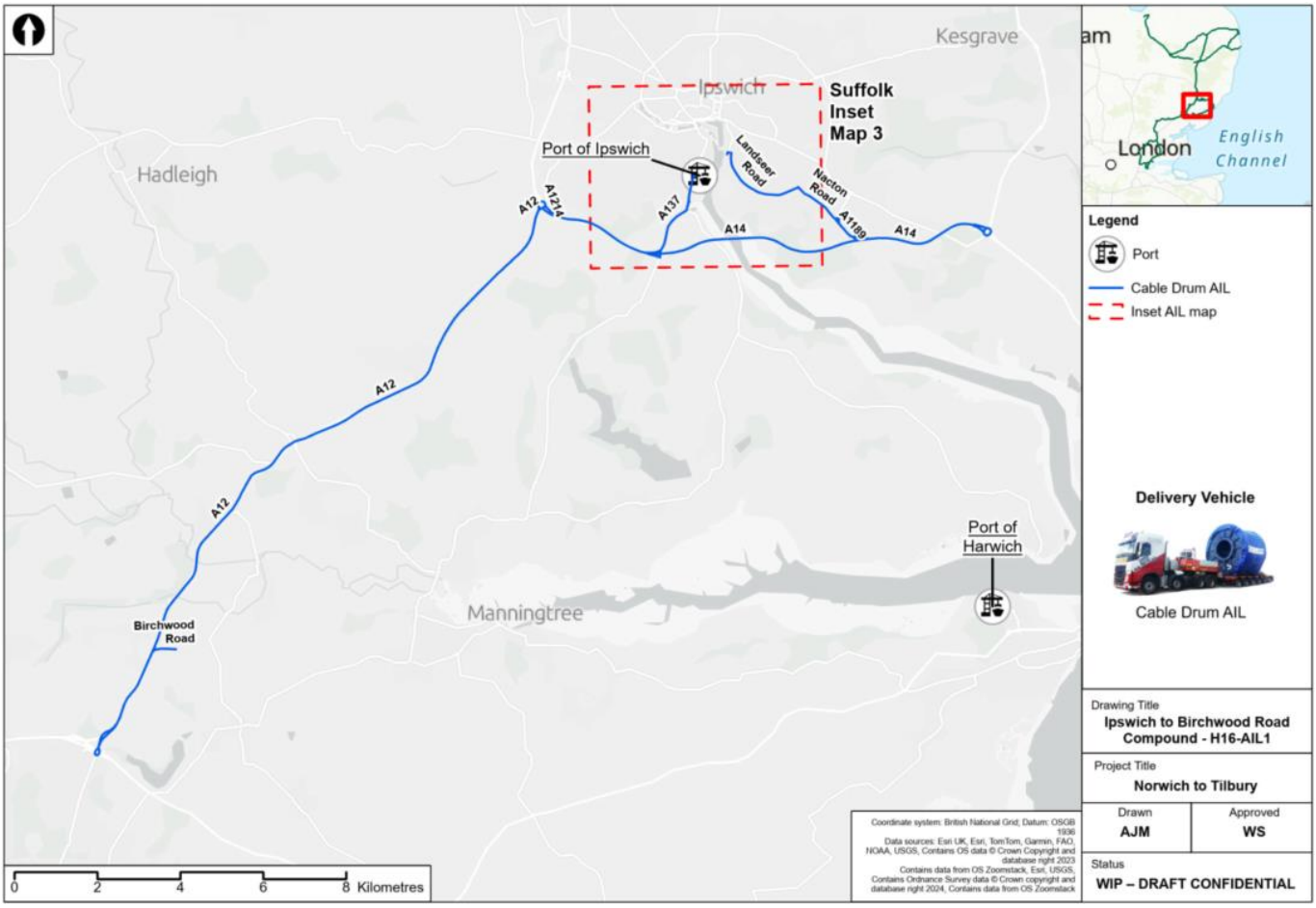
** Distances marked (W) and (E) represent the AIL route from the West Bank Quay terminal and East Bank Quay terminal respectively at the Port of Ipswich. Both options are kept open at the current stage of the project due to stakeholder feedback regarding routes originating from Ipswich.*

H16-AIL1 – Ipswich to Birchwood Road Compound

4.2.50 The proposed route, a distance of 27km (from the West Bank Quay) / 42km (from the East Bank Quay), will be for the Cable Drum AIL Delivery vehicle only and will take the route as shown in Figure 4.7.

4.2.51 The Cable Drum AIL Delivery vehicle using this route is classified as an STGO Category 3 movement.

Figure 4.7 H16-AIL1 Ipswich to Birchwood Road Compound



4.2.52 Suffolk County Council and Essex Constabulary had the same concerns over Ostrich Creek Bridge (restricted to STGO Category 2) and Orwell Bridge when coming out of the Port of Ipswich as noted above for route H11-AIL1. The structural assessment process for Ostrich Creek Bridge commenced prior to DCO submission (ID 150 as per structures schedule in Annex B). Discussions regarding other affected structures along this route are ongoing with the LHAs and National Highways.

4.2.53 Engagement with Network Rail has concluded none of their assets along the route require further structural assessment by the Project team at this stage.

4.2.54 Essex County Council noted no structural concerns around the Birchwood Road section of the route.

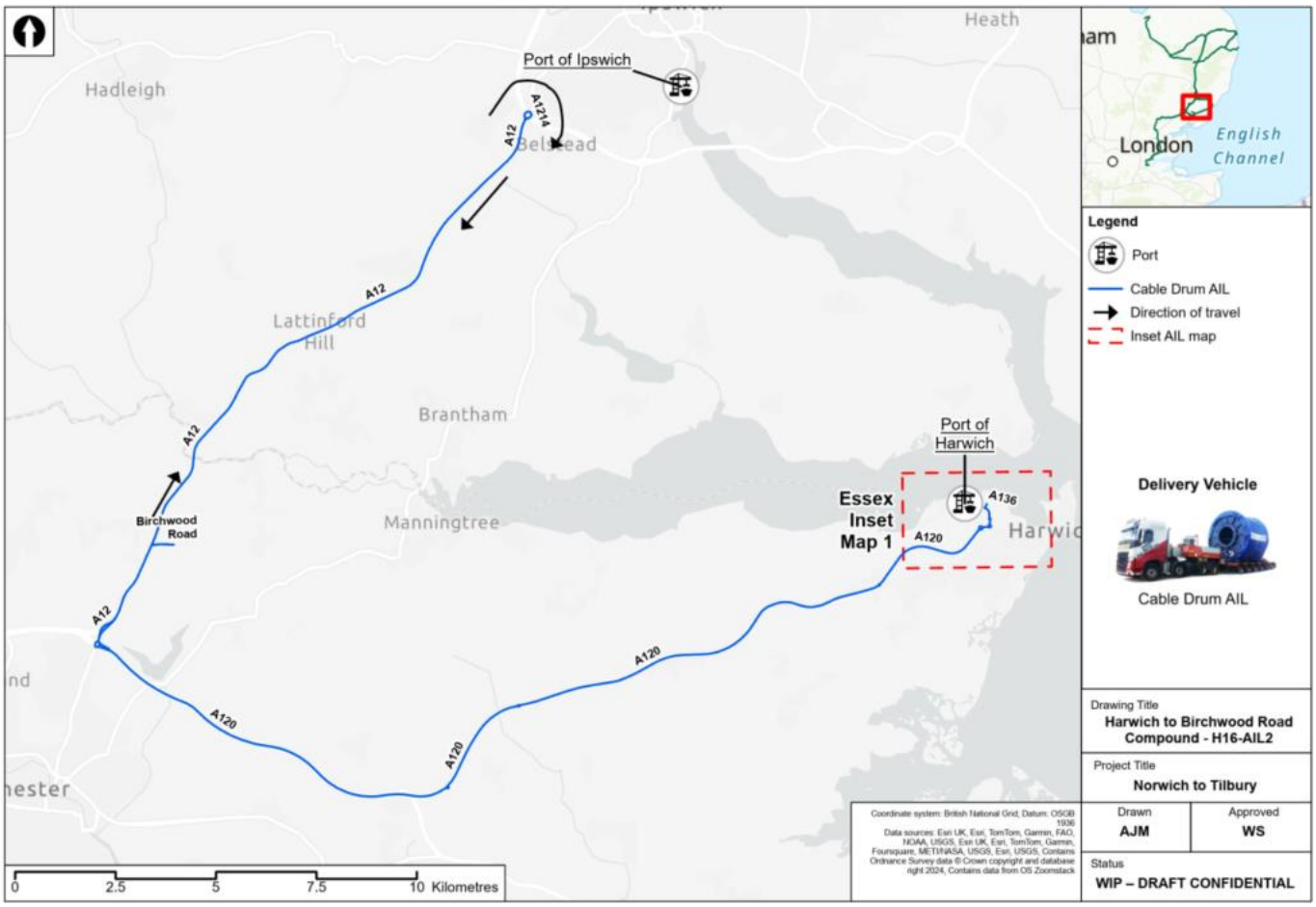
4.2.55 Based on the feedback received, route H16-AIL1 has been taken forward for further discussion and assessment.

H16-AIL2 – Harwich to Birchwood Road Compound

4.2.56 The proposed route, a distance of 50km, will be for the Cable Drum AIL Delivery vehicle only and will take the route as shown in Figure 4.8.

4.2.57 The Cable Drum AIL Delivery vehicle using this route is classified as an STGO Category 3 movement.

Figure 4.8 H16-AIL2 Harwich to Birchwood Road Compound



4.2.58 Key structures in the Harwich area the Cable Drum Delivery AIL vehicle will need to use on this route are Phoenix Bridge (rail overbridge near the Port) and the Dovercourt Dock River crossing (between the Parkeston and St. Nicholas roundabouts. Since both locations are used often by large loads, these are not considered significant concerns but would need to be assessed for the specific loading of the proposed vehicles.

4.2.59 Feedback from Essex County Council has raised the need for structural assessments of these bridges as well as a culvert on the A120 near Parkeston Roundabout (IDs: 206, 207, 208 as per structures schedule in Annex B). Discussions are ongoing with the LHA to progress assessments of these as well as other affected structures along this route.

4.2.60 Discussions with National Highways are also ongoing regarding structures along this route. Engagement with Network Rail has concluded none of their assets along the route require further structural assessment by the Project team at this stage.

4.2.61 Essex County Council noted no structural concerns around the Birchwood Road section of the route.

4.2.62 Essex Constabulary expressed concerns over the frequency of AIL movements proposed through the Birchwood Road junction off the A12 and noted that it will likely need mitigation works/traffic enforcement measures and close policing if this option is chosen. This, among the other factors mentioned, is not a hindrance to the route but would need to be monitored and coordinated.

4.2.63 Based on the feedback received, route H16-AIL2 has been taken forward for further discussion and assessment.

EACN Substation

4.2.64 There are 2No. route options to reach the EACN Substation site as shown in Table 4.5 below.

Table 4.5 AIL route options to EACN Substation site

AIL Route ID	Start Location (Port)	Final Location	Distance (km)*	Affected LHA
H17-AIL1	Harwich	EACN Substation	22	Essex
H17-AIL2	Ipswich		43 (W) / 58 (E)	Suffolk, Essex

** Distances marked (W) and (E) represent the AIL route from the West Bank Quay terminal and East Bank Quay terminal respectively at the Port of Ipswich. Both options are kept open at the current stage of the project due to stakeholder feedback regarding routes originating from Ipswich*

4.2.65 Historical AIL usage across sections of the proposed routes includes:

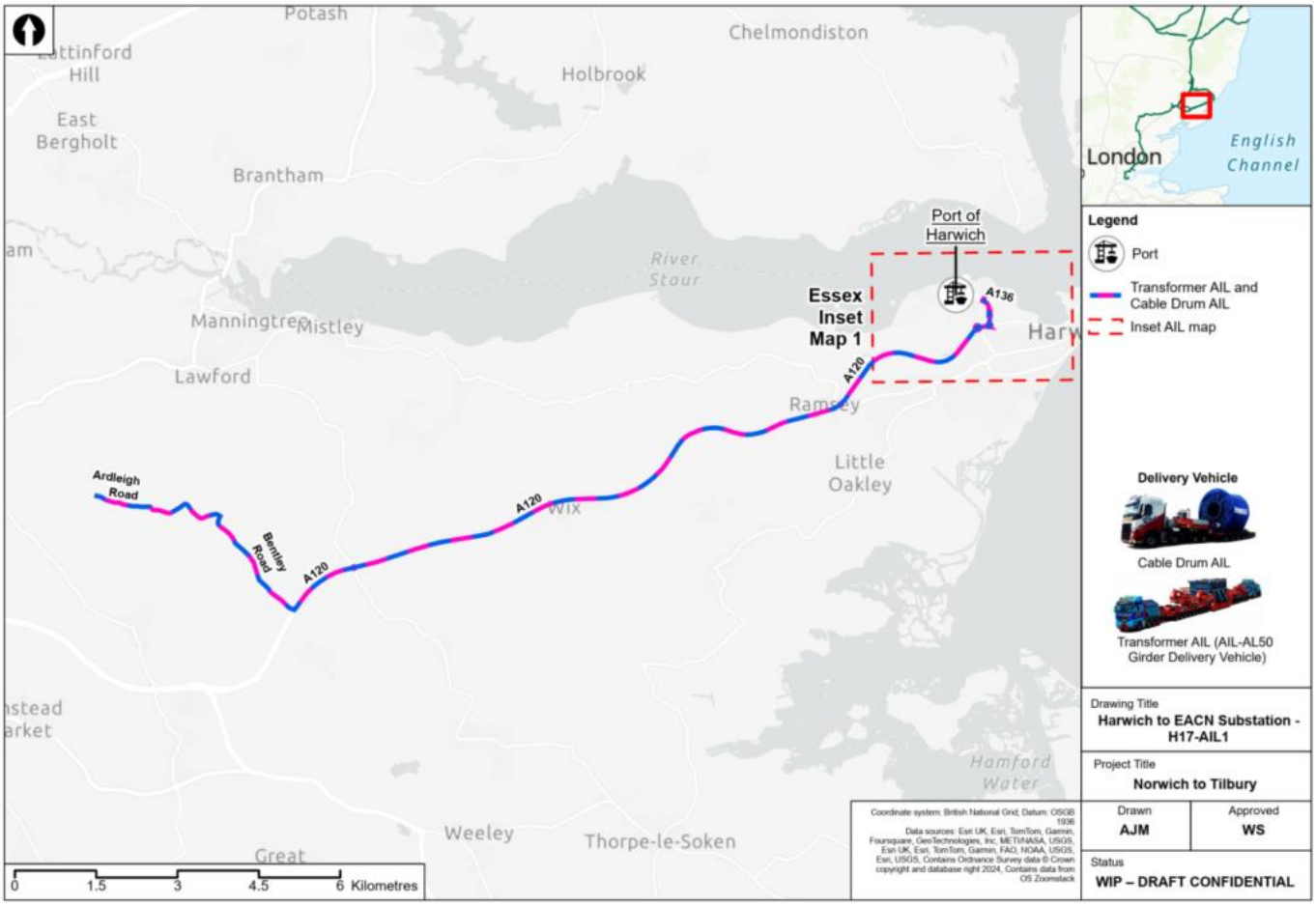
- Transformer AIL was transported from the Port of Ipswich to Bramford Substation in June 2024 using a route similar to H17-AIL2 via A137 and A14. The AIL vehicle weighed 471tonnes.

H17-AIL1 – Harwich to EACN Substation

4.2.66 The proposed route, a distance of 22km, will be for the Transformer AIL and Cable Drum AIL Delivery vehicles and will take the route as shown in Figure 4.9.

4.2.67 The Cable Drum AIL Delivery vehicle using this route is classified as an STGO Category 3 movement and the Transformer AIL Delivery vehicle using this route is classified as an SO movement.

Figure 4.9 H17-AIL1 Harwich to EACN Substation



4.2.68 Key structures in the Harwich area the Transformer Delivery AIL vehicle will need to use on this route are Phoenix Bridge (rail overbridge near the Port) and the Dovercourt Dock River crossing (between the Parkeston and St. Nicholas roundabouts). Since both locations are used often by large loads, these are not considered significant concerns but would need to be assessed for the specific loading of the proposed vehicles.

4.2.69 Feedback from Essex County Council has raised the need for structural assessments of these bridges as well as a culvert on the A120 near Parkeston Roundabout (IDs: 206, 207, 208 as per structures schedule in Annex B). Discussions are ongoing with the LHA to progress assessments of these as well as other affected structures along this route.

4.2.70 Discussions with National Highways are also ongoing regarding structures along this route. Engagement with Network Rail has concluded none of their assets along the route require further structural assessment by the Project team at this stage.

4.2.71 National Highways have indicated concerns over a section of the A120 (Wix Bypass) with a risk that the road surface will not be able to accommodate AILs above approximately 300tonnes. Ongoing discussions are being sought to identify a suitable approach for transportation of the transformers (~352tonnes). These discussions are to be developed and coordinated with National Highways as well as neighbouring projects, as the project progresses.

4.2.72 Essex Constabulary did not raise any concerns with this route.

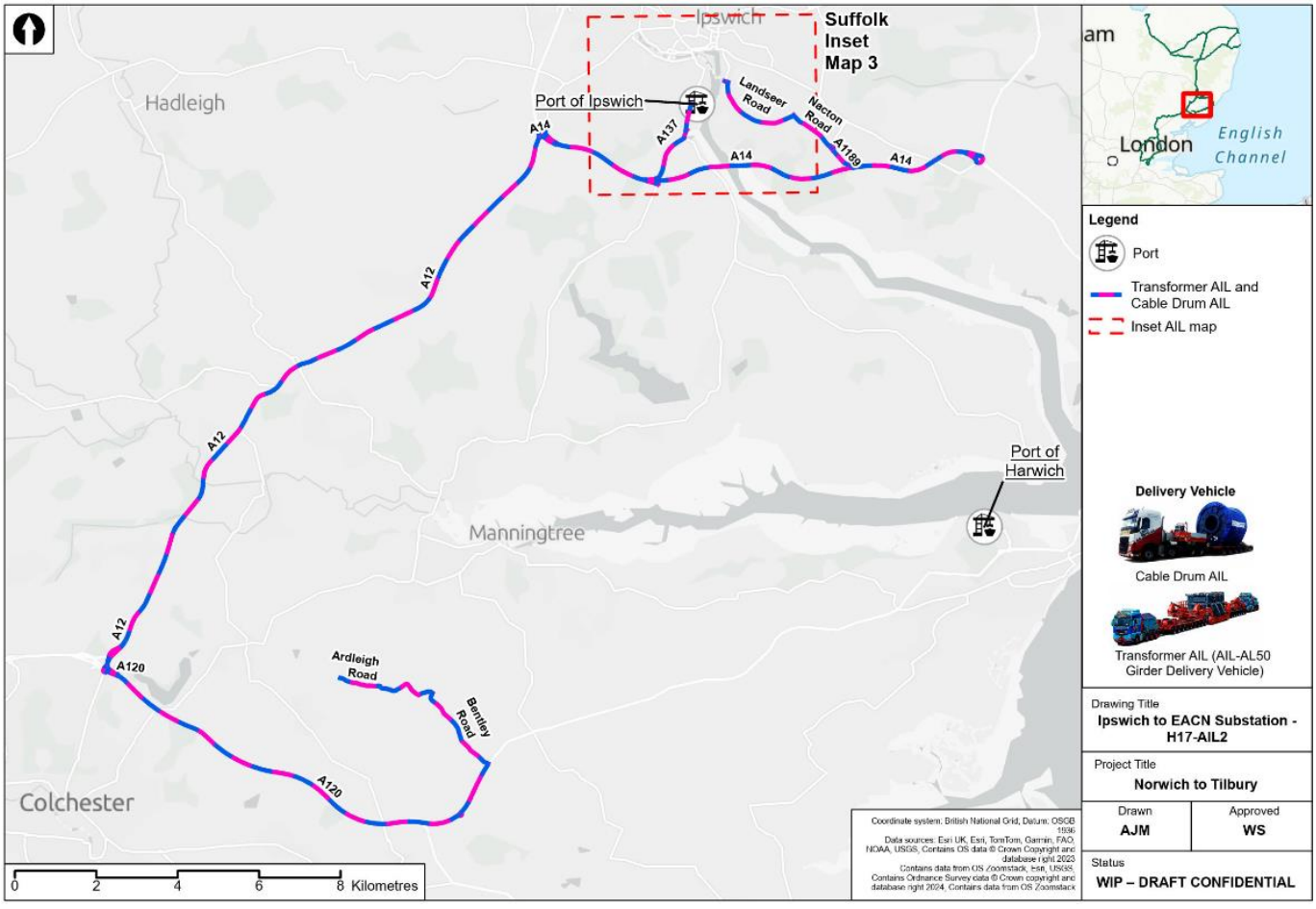
4.2.73 Based on the feedback received, route H17-AIL1 has been taken forward for further discussion and assessment.

H17-AIL2 – Ipswich to EACN Substation

4.2.74 The proposed route, a distance of 43km (from the West Bank Quay) / 58km (from the East Bank Quay), will be for the Transformer AIL and Cable Drum AIL Delivery vehicles and will take the route as shown in Figure 4.10.

4.2.75 The Cable Drum AIL Delivery vehicle using this route is classified as an STGO Category 3 movement and the Transformer AIL Delivery vehicle using this route is classified as an SO movement.

Figure 4.10 H17-AIL2 Ipswich to EACN Substation



4.2.76 Suffolk County Council and Essex Constabulary had the same concerns over Ostrich Creek Bridge (restricted to STGO Category 2) and Orwell Bridge when coming out of the Port of Ipswich as noted above for route H11-AIL1. The structural assessment process for Ostrich Creek Bridge commenced prior to DCO submission (ID 150 as per structures schedule in Annex B).

4.2.77 Suffolk County Council further noted that the bridges at Wherstead and Copdock will likely cause issues for the Transformer AIL Delivery vehicle that is proposed to travel this route. The LHA further noted that historically, SO movements have been transported there but had to travel the wrong way down the A12/A14 to avoid these bridges. The suitability of these structures is to be monitored as the project progresses, and discussions regarding other affected structures along this route are ongoing with the LHAs and National Highways.

4.2.78 Engagement with Network Rail has concluded none of their assets along the route require further structural assessment by the Project team at this stage.

4.2.79 Both Suffolk and Essex Constabularies did not raise any concerns with this route.

4.2.80 Based on the feedback received, route H17-AIL1 has been taken forward for further discussion and assessment.

Great Horkesley Compound

4.2.81 There are 2No. route options to reach the Great Horkesley Compound site as shown in Table 4.6 below.

Table 4.6 AIL route options to Great Horkesley Compound site

AIL Route ID	Start Location (Port)	Final Location	Distance (km)*	Affected LHA
H19-AIL1	Harwich	Great Horkesley	37	Essex
H19-AIL2	Ipswich		35 (W) / 48 (E)	Suffolk, Essex

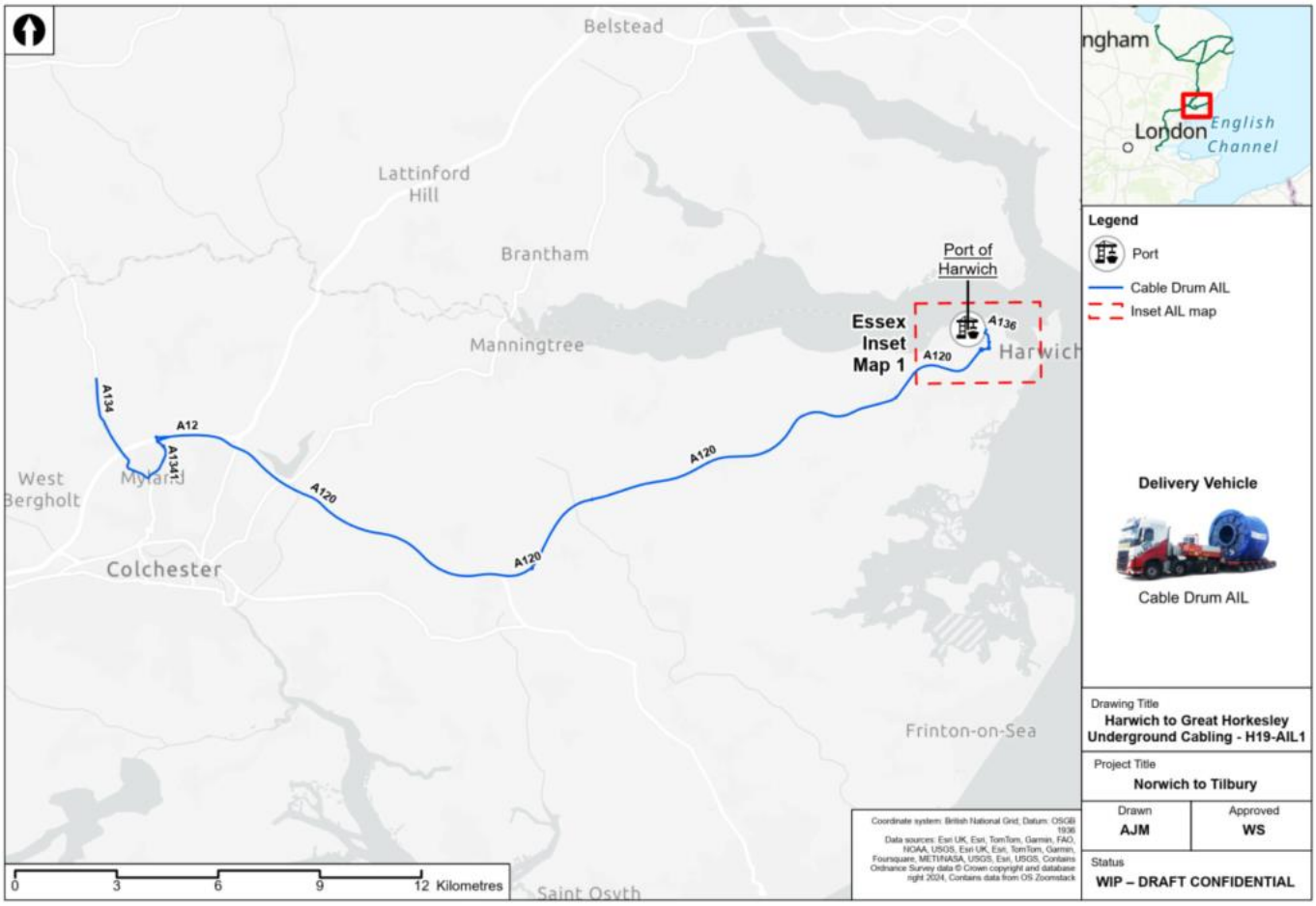
** Distances marked (W) and (E) represent the AIL route from the West Bank Quay terminal and East Bank Quay terminal respectively at the Port of Ipswich. Both options are kept open at the current stage of the project due to stakeholder feedback regarding routes originating from Ipswich*

H19-AIL1 – Harwich to Great Horkesley Compound

4.2.82 The proposed route, a distance of 37km, will be for the Cable Drum AIL Delivery vehicle only and will take the route as shown in Figure 4.11.

4.2.83 The Cable Drum AIL Delivery vehicle using this route is classified as an STGO Category 3 movement.

Figure 4.11 H19-AIL1 Harwich to Great Horkesley Compound



4.2.84 Key structures in the Harwich area the Cable Drum Delivery AIL vehicle will need to use on this route are Phoenix Bridge (rail overbridge near the Port) and the Dovercourt Dock River crossing (between the Parkeston and St. Nicholas roundabouts). Since both locations are used often by large loads, these are not considered significant concerns but would need to be assessed for the specific loading of the proposed vehicles.

4.2.85 Feedback from Essex County Council has raised the need for structural assessments of these bridges as well as a culvert on the A120 near Parkeston Roundabout (IDs: 206, 207, 208 as per structures schedule in Annex B). Discussions are ongoing with the LHA to progress assessments of these as well as other affected structures along this route.

4.2.86 Discussions with National Highways are also ongoing regarding structures along this route. Engagement with Network Rail has concluded none of their assets along the route require further structural assessment by the Project team at this stage.

4.2.87 Essex County Council noted no structural concerns around the section of the route up to Great Horkesley (The Causeway etc.), leaving the only potential concerns in this area to be around carriageway condition.

4.2.88 Essex Constabulary did not raise any concerns with this route.

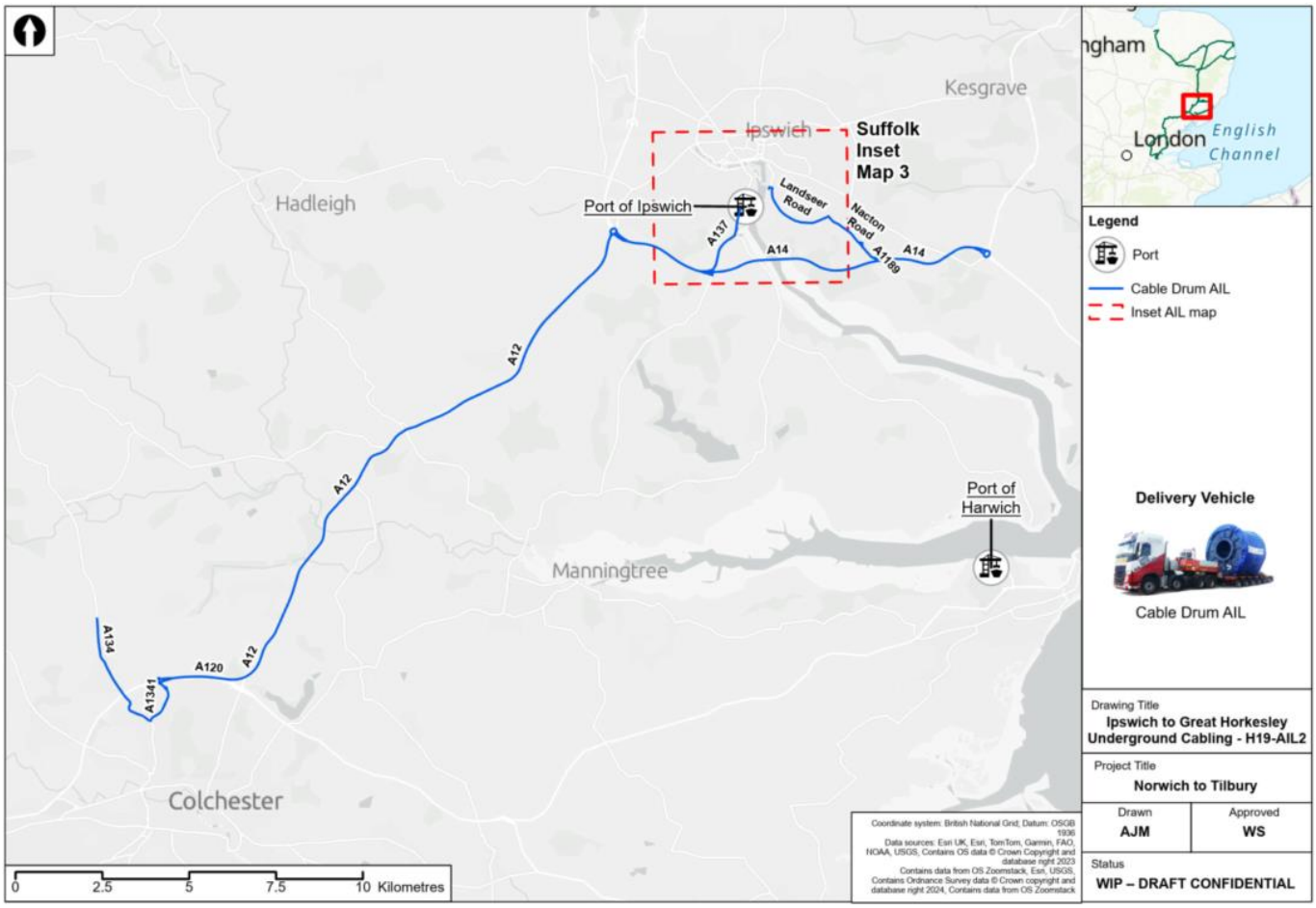
4.2.89 Based on the feedback received, route H19-AIL1 has been taken forward for further discussion and assessment.

H19-AIL2 – Ipswich to Great Horkesley Compound

4.2.90 The proposed route, a distance of 35km (from the West Bank Quay) / 48km (from the East Bank Quay), will be for the Cable Drum AIL Delivery vehicle only and will take the route as shown in Figure 4.12.

4.2.91 The Cable Drum AIL Delivery vehicle using this route is classified as an STGO Category 3 movement.

Figure 4.12 H19-AIL2 Ipswich to Great Horkesley Compound



4.2.92 The Cable Drum AIL Delivery vehicle using this route is classified as an STGO Category 3 movement.

4.2.93 Suffolk County Council and Essex Constabulary had the same concerns over Ostrich Creek Bridge (restricted to STGO Category 2) and Orwell Bridge when coming out of the Port of Ipswich as noted above for route H11-AIL1. The structural assessment process for Ostrich Creek Bridge commenced prior to DCO submission (ID 150 as per structures schedule in Annex B). Discussions regarding other affected structures along this route are ongoing with the LHAs and National Highways.

4.2.94 Engagement with Network Rail has concluded none of their assets along the route require further structural assessment by the Project team at this stage.

4.2.95 Essex County Council noted no structural concerns around the section of the route up to Great Horkesley (The Causeway etc.), leaving the only potential concerns in this area to be around carriageway condition.

4.2.96 Based on the feedback received, route H19-AIL2 has been taken forward for further discussion and assessment.

Fairstead Compound

4.2.97 There are 6No. route options to reach the Fairstead Compound site as shown in Table 4.7 below.

Table 4.7 AIL route options to Fairstead Compound site

AIL Route ID	Start Location (Port)	Final Location	Distance (km)	Affected LHA
H25-AIL1	London Gateway (via A13)	Fairstead	49	Thurrock, Essex
H25-AIL2	Tilbury (via A13)		56	Thurrock, Essex
H25-AIL3	Harwich		72	Essex
H25-AIL4	Ipswich		69 (W) / 84 (E)	Suffolk, Essex
H25-AIL5	Tilbury (via M25)		67	Thurrock, Essex
H25-AIL6	London Gateway (via M25)		72	Thurrock, Essex

** Distances marked (W) and (E) represent the AIL route from the West Bank Quay terminal and East Bank Quay terminal respectively at the Port of Ipswich. Both options are kept open at the current stage of the project due to stakeholder feedback regarding routes originating from Ipswich*

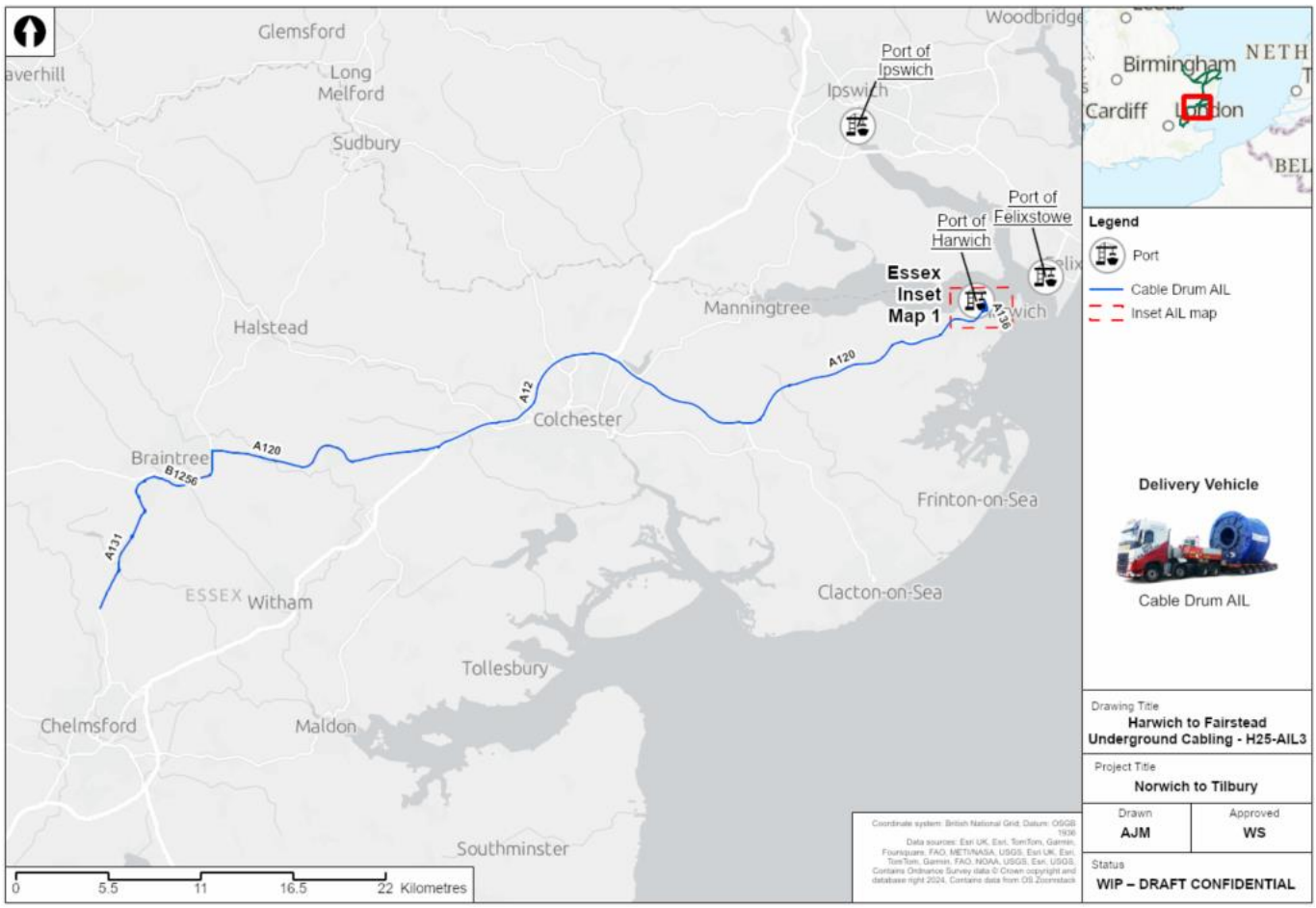
4.2.98 Restrictions along routes H25-AIL1 and H25-AIL2 deem options H25-AIL3, H25-AIL4, H25-AIL5 and H25-AIL6 to be the most feasible and preferred options. For this reason, route options H25-AIL1 and H25-AIL2 have been discounted and not taken forward for further consideration. Refer to Annex D for more information on discounted routes.

H25-AIL3 – Harwich to Fairstead Compound

4.2.99 The proposed route, a distance of 72km, will be for the Cable Drum AIL Delivery vehicle only and will take the route as shown in Figure 4.13.

4.2.100 The Cable Drum AIL Delivery vehicle using this route is classified as an STGO Category 3 movement.

Figure 4.13 H25-AIL3 Harwich to Fairstead Compound



4.2.101 Key structures in the Harwich area that the Cable Drum Delivery AIL vehicle will need to use on this route are Phoenix Bridge (rail overbridge near the Port) and the Dovercourt Dock River crossing (between the Parkeston and St. Nicholas roundabouts). Since both locations are used often by large loads, these are not considered significant concerns but would need to be assessed for the specific loading of the proposed vehicles.

4.2.102 Feedback from Essex County Council has raised the need for structural assessments of these bridges as well as a culvert on the A120 near Parkeston Roundabout (IDs: 206, 207, 208 as per structures schedule in Annex B).

4.2.103 Essex County Council also noted there is an existing AIL ban along the A131, though this was implemented due to missing data as opposed to structural issues or constraints. No further structural concerns have been identified by Essex County Council at this stage but discussions are ongoing; the A131 Bypass near Great Notley was recently constructed and therefore is considered unlikely to be a risk (subject to confirmation).

4.2.104 National Highways also noted a potential 100tonne weight limit on a bridge near Junction 27 of the A12 and Essex County Council further noted there may be additional restrictions through Colchester which could affect the route. The Cable Drum Delivery AIL vehicle is approximately 104,000kg. Confirmation of this weight limit and bridge location is subject to confirmation and discussions with National Highways are ongoing.

4.2.105 Engagement with Network Rail has concluded none of their assets along the route require further structural assessment by the Project team at this stage.

4.2.106 Essex Constabulary noted plans are in place to upgrade A12 Junction 25 (near Marks Tey) which will likely impact this route due to tying in works. This, among the other factors mentioned, is not a hindrance to the route but would need to be monitored and coordinated.

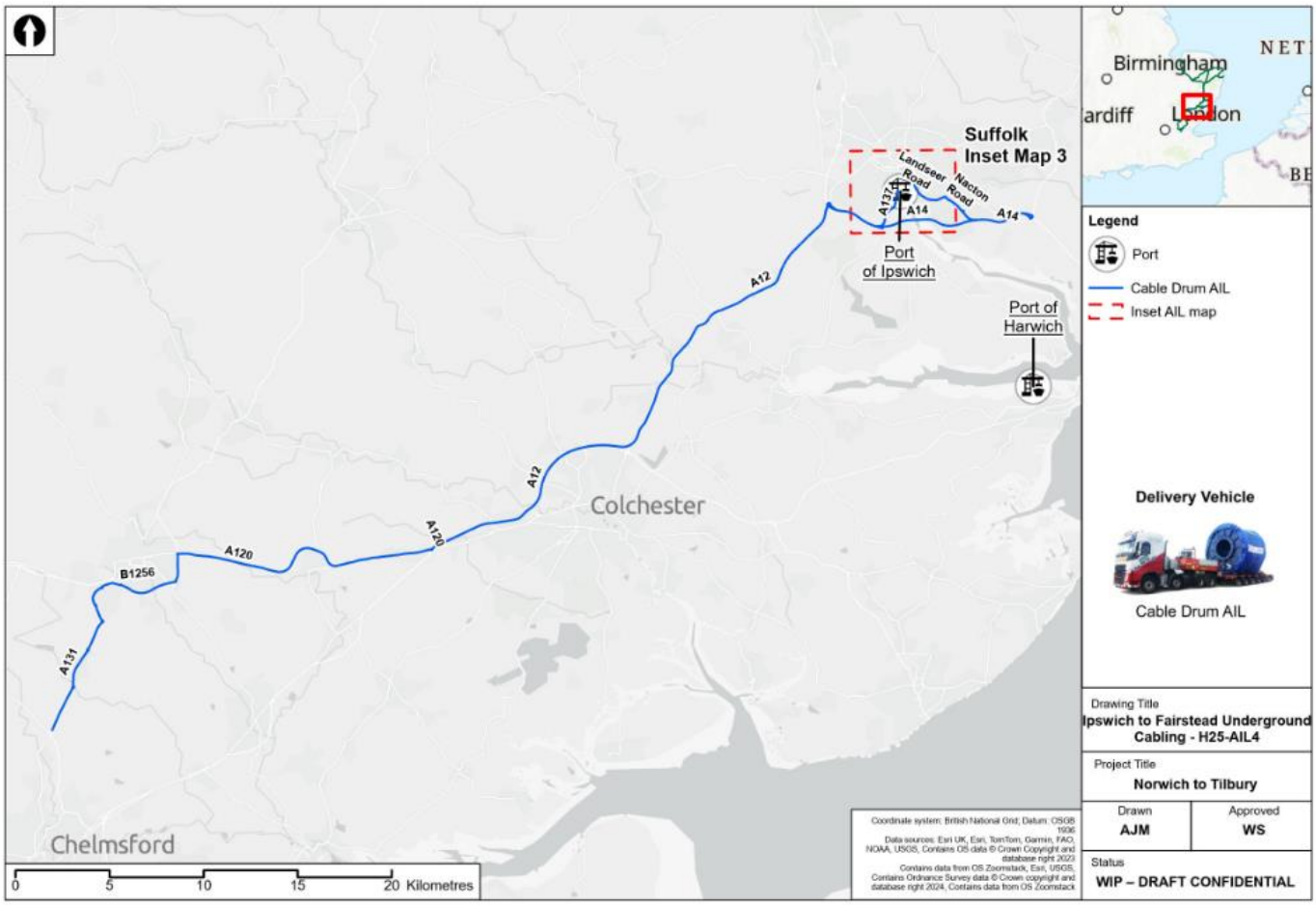
4.2.107 Based on the feedback received and the need for further assessment, route H25-AIL3 has been taken forward for further discussion.

H25-AIL4 – Ipswich to Fairstead Compound

4.2.108 The proposed route, a distance of 68km (from the West Bank Quay) / 84km (from the East Bank Quay), will be for the Cable Drum AIL Delivery vehicle only and will take the route as shown in Figure 4.14.

4.2.109 The Cable Drum AIL Delivery vehicle using this route is classified as an STGO Category 3 movement.

Figure 4.14 H25-AIL4 Ipswich to Fairstead Compound



4.2.110 Suffolk County Council and Essex Constabulary had the same concerns over Ostrich Creek Bridge (restricted to STGO Category 2) and Orwell Bridge when coming out of the Port of Ipswich as noted above for route H11-AIL1. The structural assessment process for Ostrich Creek Bridge commenced prior to DCO submission (ID 150 as per structures schedule in Annex B) and discussions regarding other affected Suffolk County Council structures along this route are ongoing.

4.2.111 Essex County Council noted there is an existing AIL ban along the A131, though this was implemented due to missing data as opposed to structural issues or constraints. No further structural concerns have been identified by Essex County Council at this stage but discussions are ongoing; the A131 Bypass near Great Notley was recently constructed and therefore is considered unlikely to be a risk (subject to confirmation).

4.2.112 National Highways also noted a potential 100tonne weight limit on a bridge near Junction 27 of the A12 and Essex County Council further noted there may be additional restrictions through Colchester which could affect the route. The Cable Drum Delivery AIL vehicle is approximately 104,000kg. Confirmation of this weight limit and bridge location is subject to confirmation and discussions with National Highways are ongoing. Engagement with Network Rail has concluded none of their assets along the route require further structural assessment by the Project team at this stage.

4.2.113 Essex Constabulary noted plans are in place to upgrade A12 Junction 25 (near Marks Tey) which will likely impact this route due to tying in works. This, among the other factors mentioned, is not a hindrance to the route but would need to be monitored and coordinated.

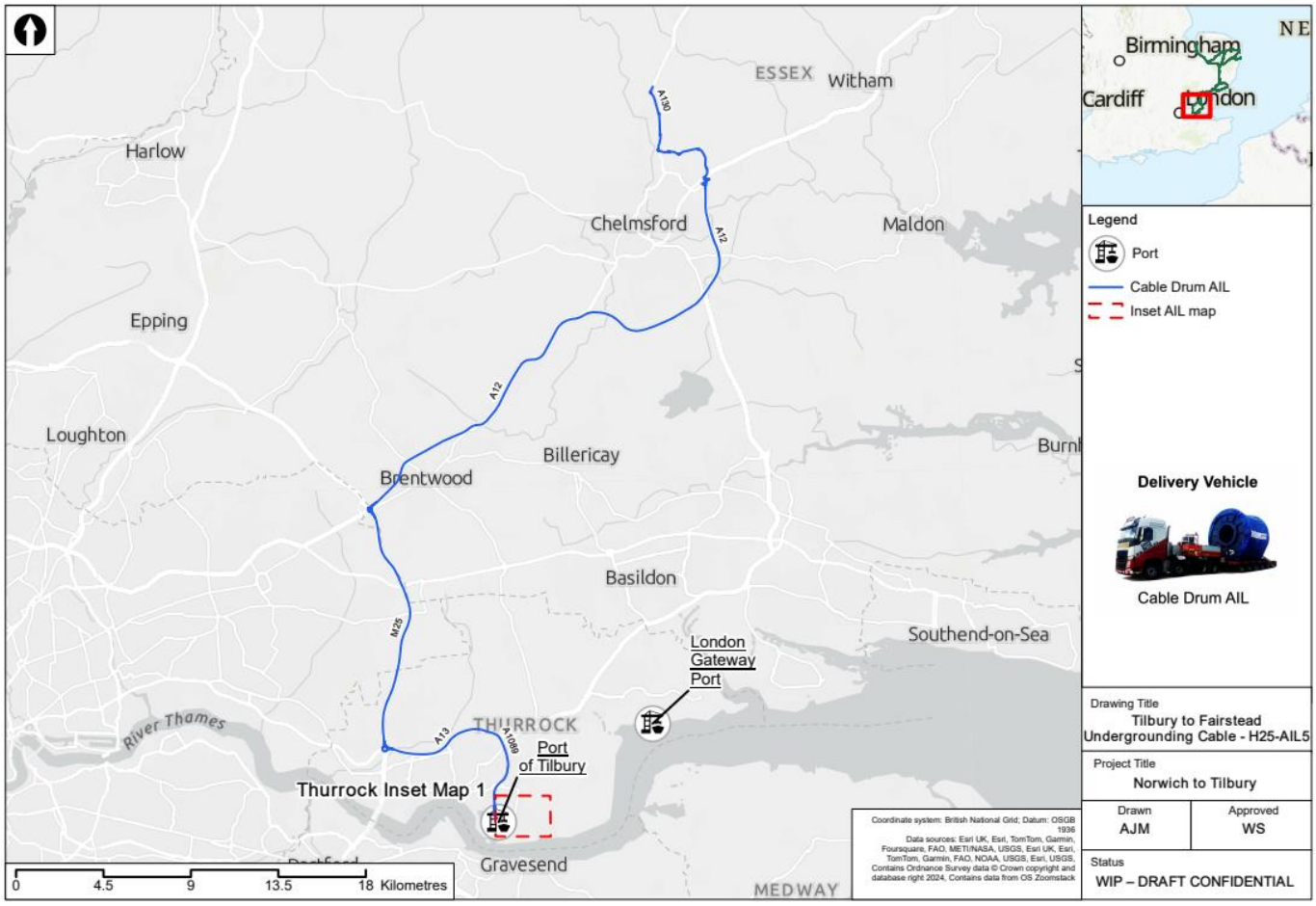
4.2.114 Based on the feedback received, route H25-AIL4 has been taken forward for further discussion and assessment.

H25-AIL5 – Tilbury (via M25) to Fairstead Compound

4.2.115 The proposed route, a distance of 67km, will be for the Cable Drum AIL Delivery vehicle only and will take the route as shown in Figure 4.15.

4.2.116 The Cable Drum AIL Delivery vehicle using this route is classified as an STGO Category 3 movement.

Figure 4.15 H25-AIL5 Tilbury (via M25) to Fairstead Compound



4.2.117 The roundabout at the Asda Superstore was highlighted by Thurrock Council as a potential constraint, particularly due to the adverse camber which could restrict the Cable Drum Delivery AIL vehicle. However, these AIL movements will be escorted and travelling at low speeds, hence it is not considered as a significant constraint.

4.2.118 Essex County Council noted no structural concerns in the Fairstead area (North of Springfield), with a large part being newly constructed. There was uncertainty as to whether all new roads had been adopted by Essex County Council, therefore the absence of structures/concerns in the localised area is subject to confirmation of this. Discussions regarding affected structures along this route are ongoing with the LHAs and National Highways. Engagement with Network Rail has concluded none of their assets along the route require further structural assessment by the Project team at this stage.

4.2.119 Essex Constabulary noted that near the M25 Junction 28/29 there will be a crossover with this route and the tying in works for the Lower Thames Crossing project, meaning the road layout may be different by the time AIL movements occur. This is not a hindrance to the route but would need to be monitored and coordinated.

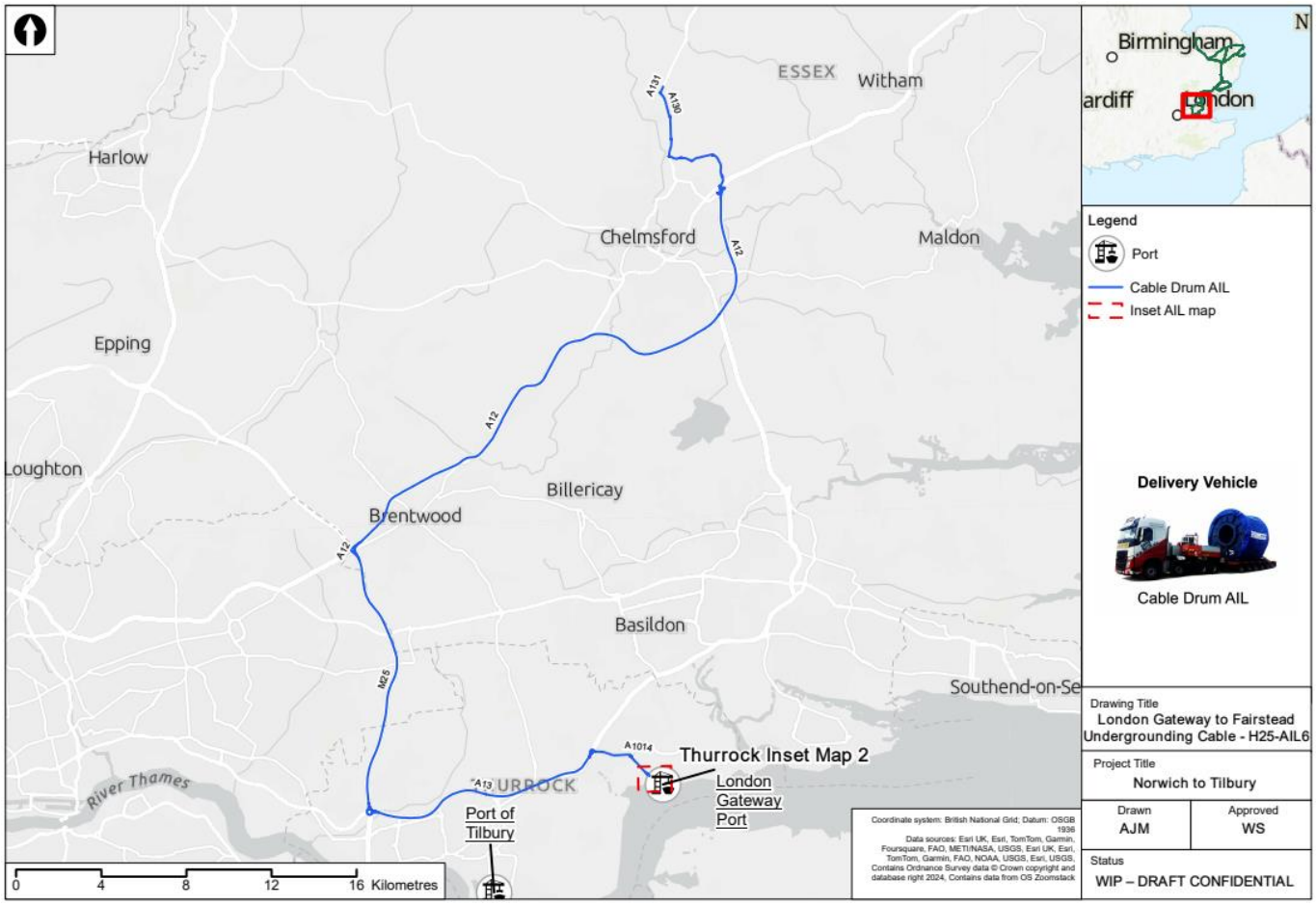
4.2.120 Based on the feedback received, route H25-AIL5 has been taken forward for further discussion and assessment.

H25-AIL6 – London Gateway (via M25) to Fairstead Compound

4.2.121 The proposed route, a distance of 72km, will be for the Cable Drum AIL Delivery vehicle only and will take the route as shown in Figure 4.16.

4.2.122 The Cable Drum AIL Delivery vehicle using this route is classified as an STGO Category 3 movement.

Figure 4.16 H25-AIL6 London Gateway (via M25) to Fairstead Compound



4.2.123 Thurrock Council have identified 2No. of their structures requiring assessment; a road bridge at A1014 The Manorway and a bridge over the railway line near Stanford-le-Hope Bypass. The structural assessment process for these commenced prior to DCO submission (IDs: 73 and 205 as per structures schedule in Annex B).

4.2.124 Thurrock Council also noted that timings and durations of movements will need to be considered carefully in the London Gateway area due to high volumes of traffic from the ports and the proximity of a dual carriageway.

4.2.125 Essex County Council noted no structural concerns in the Fairstead area (North of Springfield), with a large part being newly constructed. There was uncertainty as to whether all new roads had been adopted by Essex County Council, therefore the absence of structures/concerns in the localised area is subject to confirmation of this. Discussions regarding affected structures along this route are ongoing with the LHAs and National Highways.

4.2.126 Engagement with Network Rail has concluded none of their assets along the route require further structural assessment by the Project team at this stage.

4.2.127 Essex Constabulary noted that near the M25 Junction 28/29 there will be a crossover with this route and the tying in works for the Lower Thames Crossing project, meaning the road layout may be different by the time AIL movements occur. Essex Constabulary expressed preference over departing from Tilbury over London Gateway due to history of moving abnormal loads through the area, reaching up to 600tonnes. Essex Constabulary, however, do also have experience moving other abnormal loads through the London Gateway area.

4.2.128 Based on the feedback received, route H25-AIL6 has been taken forward for further discussion and assessment.

Buckingham Hill Road (Tilbury North Substation)

4.2.129 There are 2No. route options to reach Buckingham Hill Road, for access to Tilbury North Substation site, as shown in Table 4.8.

4.2.130 Access to Tilbury North Substation for the Transformer AIL Delivery vehicle is only required via Buckingham Hill Road (routes H36-AIL1/H36-AIL2) or Brentwood Road (routes H36-AIL4/H36-AIL5).

4.2.131 Options for both are provided at this stage of the project and are subject to further discussions with the LHA and Police, though it is expected that only one or the other will be required as a final destination point. Options for the Port of origin (London Gateway/Tilbury) are also kept open at this stage of the project.

Table 4.8 AIL route options to Buckingham Hill Road (Tilbury North Substation) site

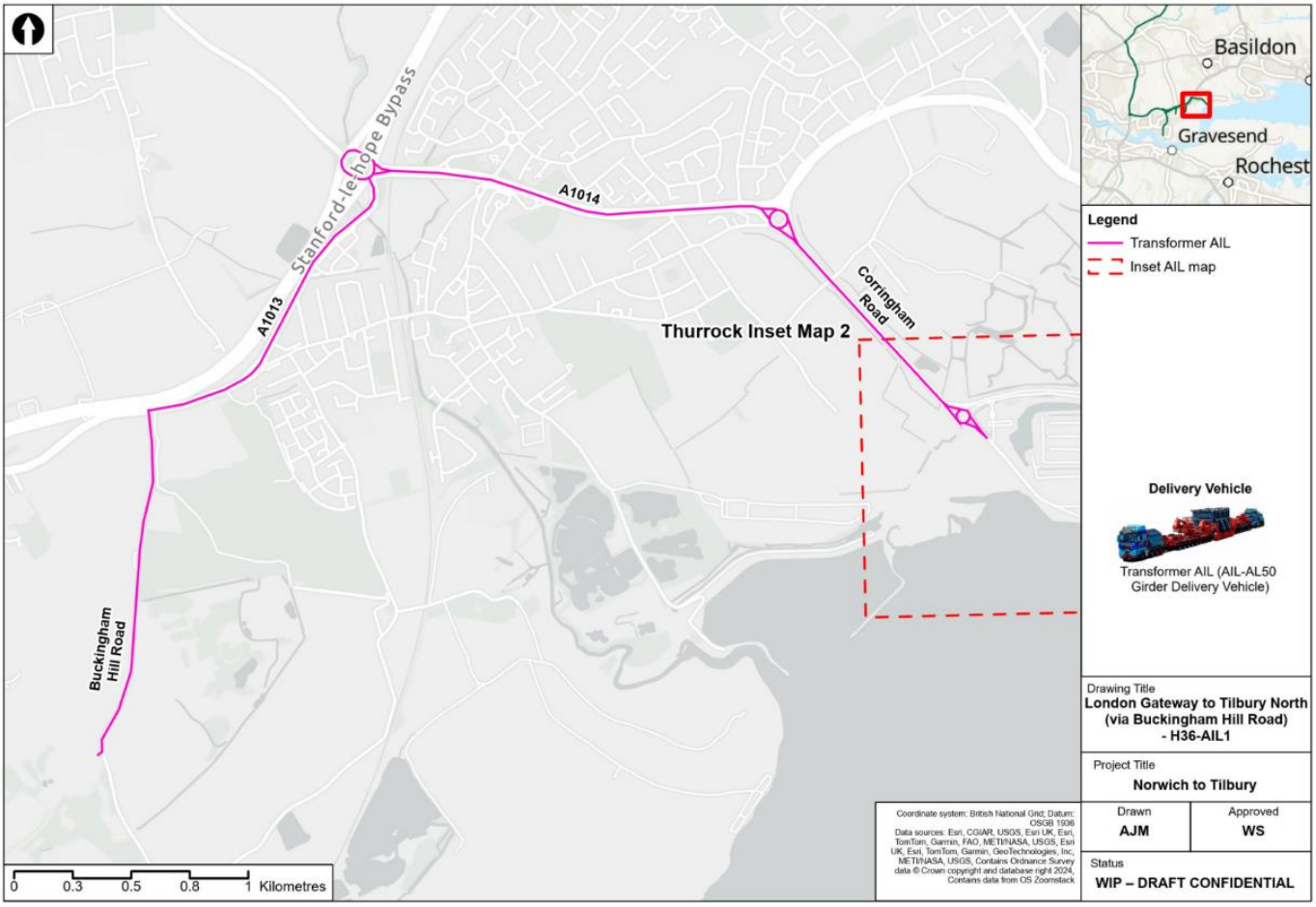
AIL Route ID	Start Location (Port)	Final Location	Distance (km)	Affected LHA
H36-AIL1	London Gateway	Buckingham Hill Road (Tilbury North Substation)	7	Thurrock
H36-AIL2	Tilbury		13	Thurrock

H36-AIL1 – London Gateway to Buckingham Hill Road (Tilbury North Substation)

4.2.132 The proposed route, a distance of 7km, will be for the Transformer AIL Delivery vehicle only and will take the route as shown in Figure 4.17.

4.2.133 The Transformer AIL Delivery vehicle using this route is classified as an SO movement.

Figure 4.17 H36-AIL1 London Gateway to Buckingham Hill Road (Tilbury North Substation)



4.2.134 The Transformer AIL Delivery vehicle using this route is classified as an SO movement.

4.2.135 Discussions are ongoing with the LHA and Police to assess suitability of the route above. Essex Police commented that Transformer AILs exiting out of London Gateway Port may have difficulties due to structures along the A1014 as well as street furniture.

4.2.136 Essex Police further stated they have no clear preference over transporting AILs via Buckingham Hill Road or Brentwood Road, but that they have more experience with Buckingham Hill Road historically, and it is generally wider.

4.2.137 Input from National Highways is required for those sections which are on the SRN and engagement on this is ongoing. Engagement with Network Rail has concluded there are no known assets of theirs along this route.

4.2.138 Two structures have been identified by Thurrock Council as requiring structural assessment near Stanford-le-Hope Bypass (rail bridge) and The Manorway (road bridge). The LHA have been consulted on this and the processes to assess these structures commenced prior to DCO submission (IDs: 73 and 205 as per structures schedule in Annex B).

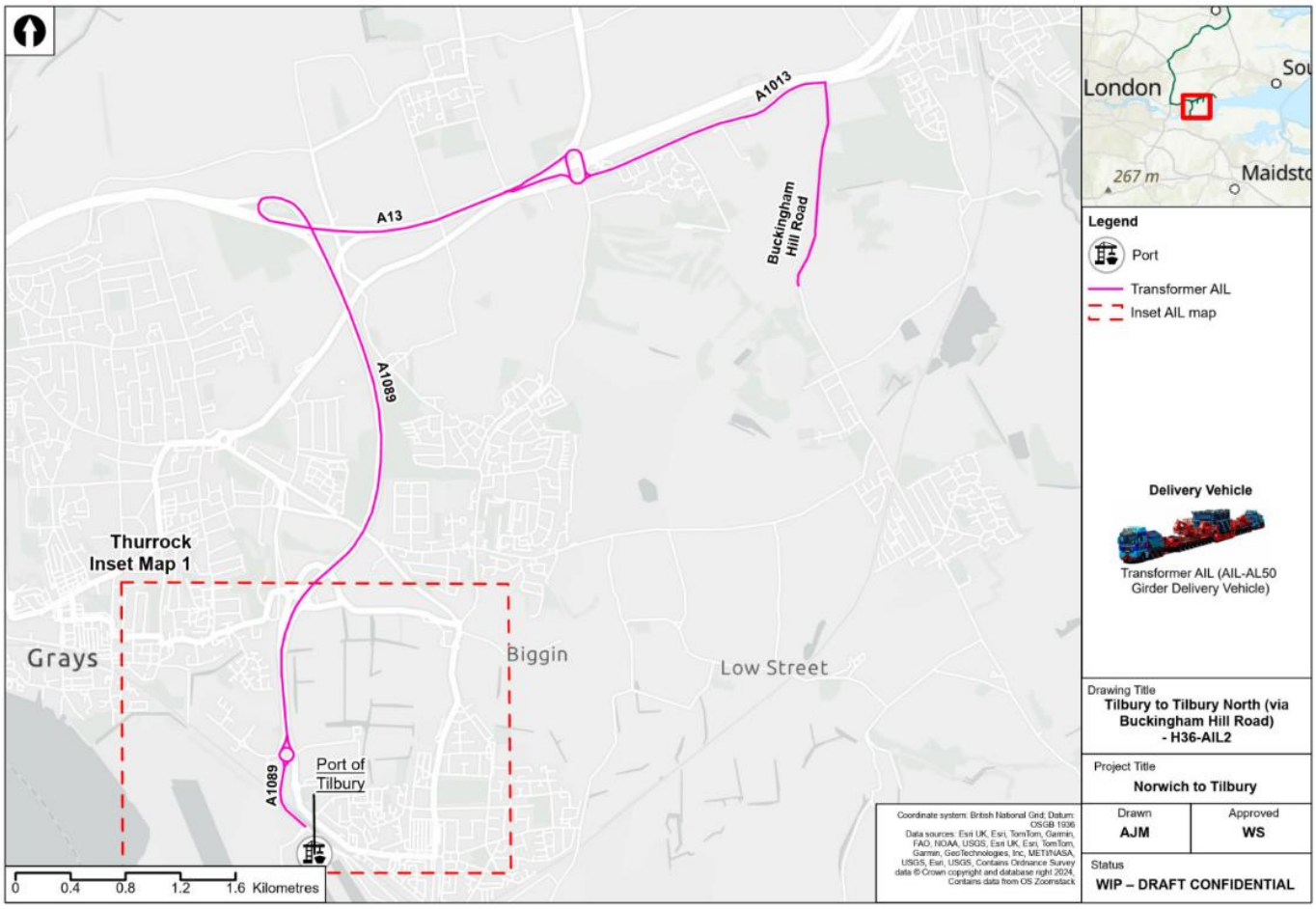
4.2.139 Based on the feedback received, route H36-AIL1 has been taken forward for further discussion and assessment.

H36-AIL2 – Tilbury to Buckingham Hill Road (Tilbury North Substation)

4.2.140 The proposed route, a distance of 13km, will be for the Transformer AIL Delivery vehicle only and will take the route as shown in Figure 4.18.

4.2.141 The Transformer AIL Delivery vehicle using this route is classified as an SO movement.

Figure 4.18 H36-AIL2 Tilbury to Buckingham Hill Road (Tilbury North Substation)



4.2.142 Discussions are ongoing with the LHA and Police to assess suitability of the route above. Essex Police commented the Transformer AILs may have difficulty with the A1089/A13 eastbound turning and hence may need to travel further West to turn around at the next junction along the A13.

4.2.143 The same comment applies to this route as per route H36-AIL1 regarding Buckingham Hill Road/Brentwood Road preference.

4.2.144 Input from National Highways is required for those sections which are on the SRN. Engagement with Network Rail has concluded none of their assets along the route require further structural assessment by the Project team at this stage.

4.2.145 Based on the feedback received, route H36-AIL2 has been taken forward for further discussion and assessment.

Brentwood Road (Tilbury North Substation)

4.2.146 There are 2No. route options to reach Brentwood Road, for access to Tilbury North Substation site, as shown in Table 4.9.

4.2.147 Access to Tilbury North Substation for the Transformer AIL Delivery vehicle is only required via Brentwood Road (routes H36-AIL3/H36-AIL4) or Buckingham Hill Road (routes H36-AIL1/H36-AIL2).

4.2.148 Options for both are provided at this stage of the project and are subject to further discussions with the LHA and Police, though it is expected that only one or the other will be required as a final destination point. Options for the Port of origin (London Gateway/Tilbury) are also kept open at this stage of the project.

Table 4.9 AIL route options to Brentwood Road (Tilbury North Substation) site

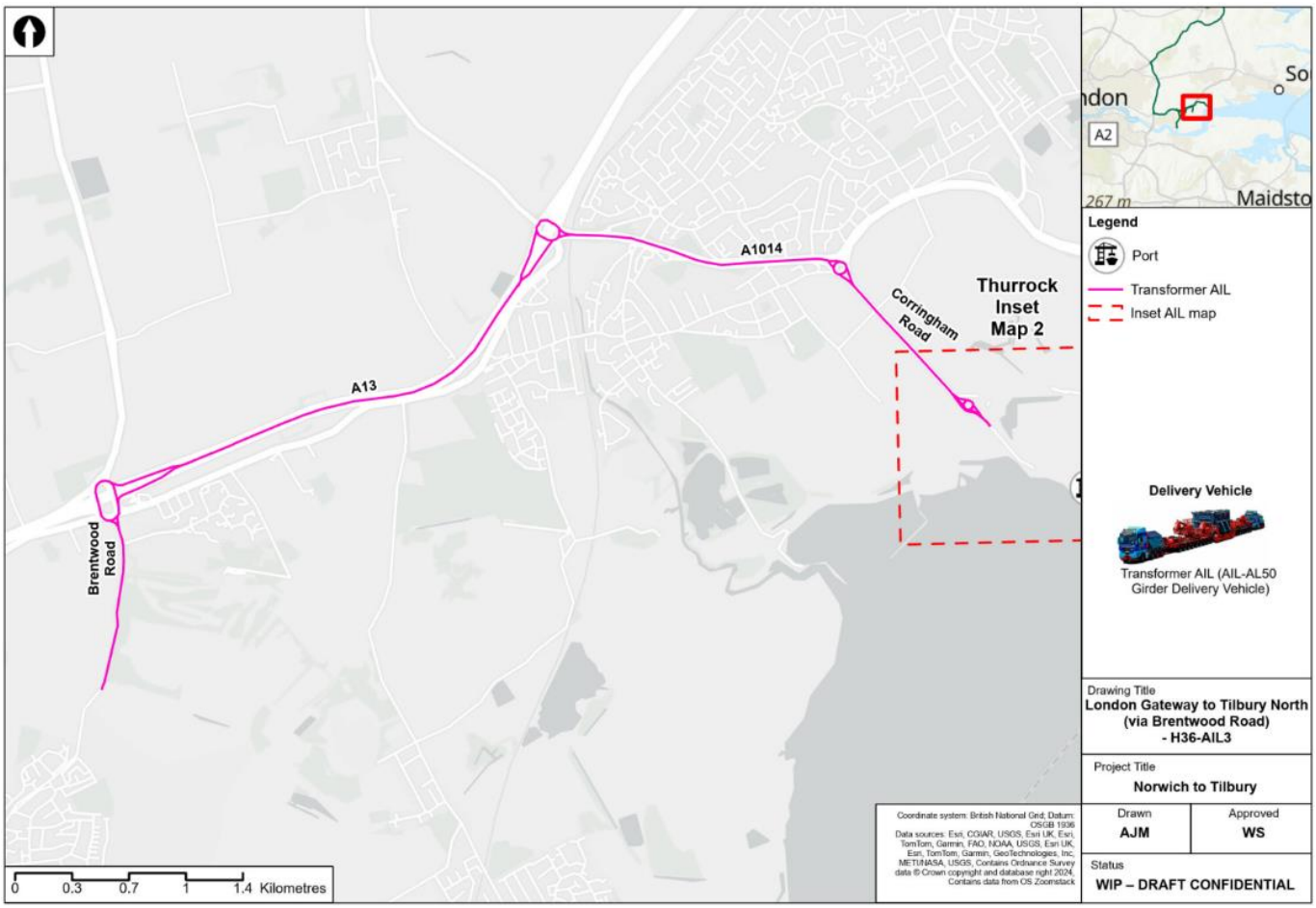
AIL Route ID	Start Location (Port)	Final Location	Distance (km)	Affected LHA
H36-AIL3	London Gateway	Brentwood Road (Tilbury North Substation)	11	Thurrock
H36-AIL4	Tilbury		11	Thurrock

H36-AIL3 – London Gateway to Brentwood Road (Tilbury North Substation)

4.2.149 The proposed route, a distance of 11km, will be for the Transformer AIL Delivery vehicle only and will take the route as shown in Figure 4.19.

4.2.150 The Transformer AIL Delivery vehicle using this route is classified as an SO movement.

Figure 4.19 H36-AIL3 London Gateway to Brentwood Road (Tilbury North Substation)



4.2.151 Discussions are ongoing with the LHA and Police to assess suitability of the route above. Essex Police hold the same concerns around London Gateway Port as per route H36-AIL1.

4.2.152 The same comment regarding Buckingham Hill Road/Brentwood Road preference also applies to this route as per route H36-AIL1.

4.2.153 Input from National Highways is required for those sections which are on the SRN. Two structures owned by Thurrock Council are undergoing structural assessment as per route H36-AIL1. Engagement with Network Rail has concluded there are no known assets of theirs along this route.

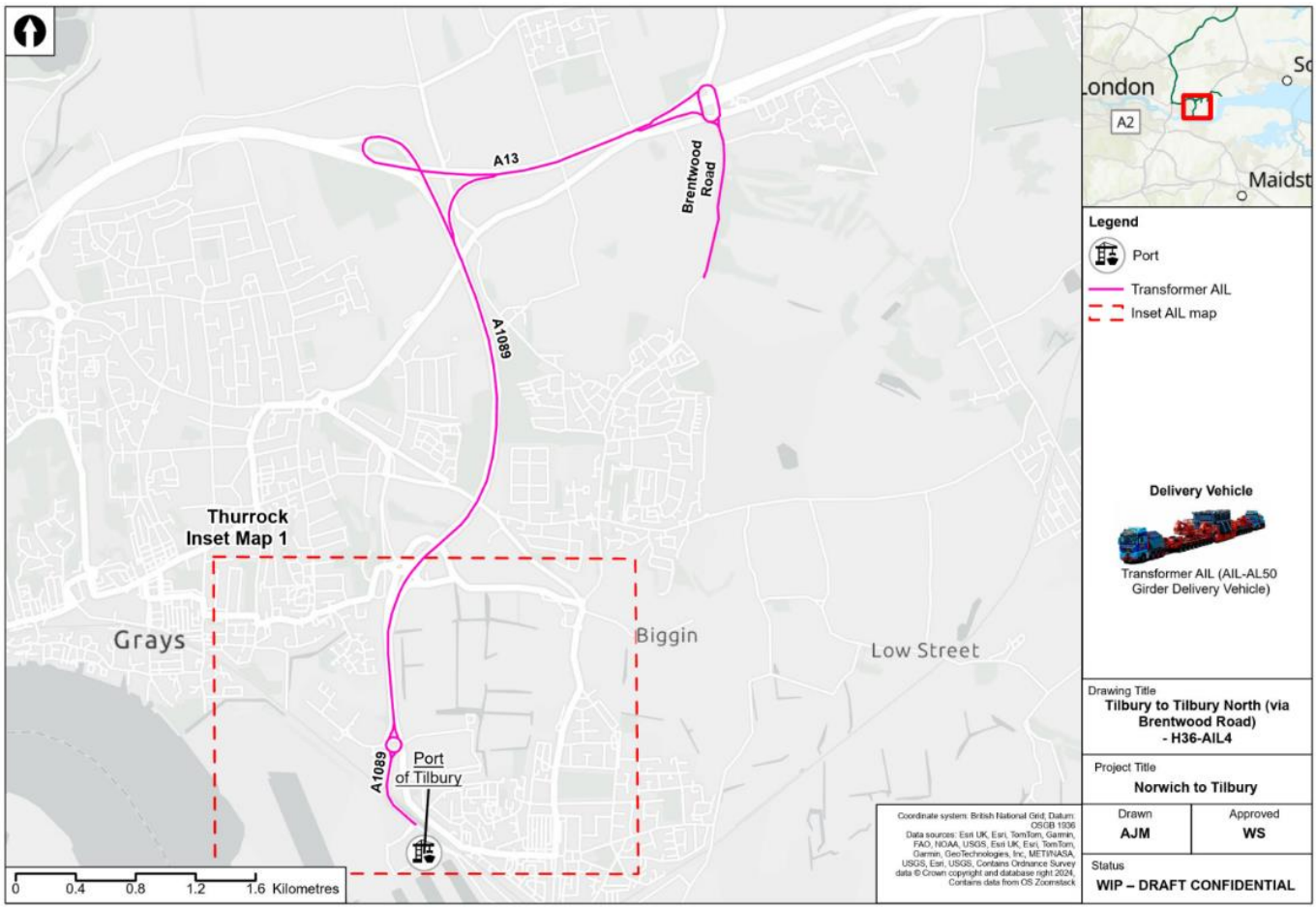
4.2.154 Based on the feedback received, route H36-AIL3 has been taken forward for further discussion and assessment.

H36-AIL4 – Tilbury to Brentwood Road (Tilbury North Substation)

4.2.155 The proposed route, a distance of 11km, will be for the Transformer AIL Delivery vehicle only and will take the route as shown in Figure 4.20.

4.2.156 The Transformer AIL Delivery vehicle using this route is classified as an SO movement.

Figure 4.20 H36-AIL4 Tilbury to Brentwood Road (Tilbury North Substation)



4.2.157 Discussions are ongoing with the LHA and Police to assess suitability of the route above. Essex Police hold the same concerns around the A1089/A13 as per route H36-AIL2. The same comment regarding Buckingham Hill Road/Brentwood Road preference also applies to this route as per route H36-AIL1.

4.2.158 Input from National Highways is required for those sections which are on the SRN. Engagement with Network Rail has concluded none of their assets along the route require further structural assessment by the Project team at this stage.

4.2.159 Based on the feedback received, route H36-AIL4 has been taken forward for further discussion and assessment.

Stanford Road/Heath Road

4.2.160 There are 4No. route options to reach Stanford Road/Heath Road, for works associated with undergrounding of existing overhead lines around Tilbury, as shown in Table 4.10.

4.2.161 Route options are proposed to either align with the existing highway arrangement, or with the arrangement proposed as part of the Lower Thames Crossing (LTC) project, in order to maintain flexibility for AIL deliveries to be undertaken as the two projects are developed. These are denoted in Table 4.10, below, as either 'without LTC' or 'with LTC' respectively.

Table 4.10 AIL route options to Stanford Road/Heath Road site

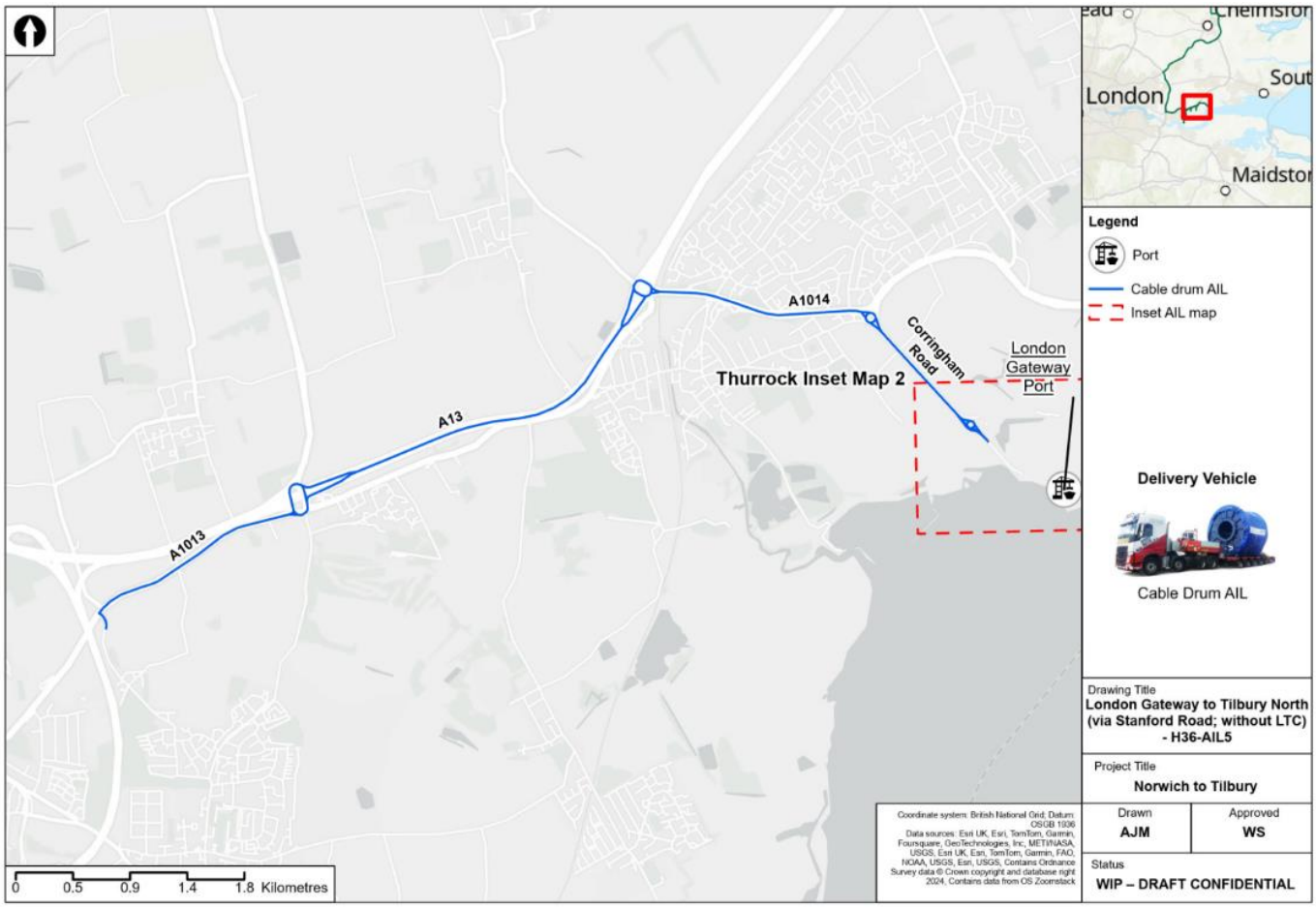
AIL Route ID	Start Location (Port)	Final Location	Distance (km)	Affected LHA
H36-AIL5	London Gateway (without LTC)	Stanford Road / Heath Road	11	Thurrock
H36-AIL6	Tilbury (without LTC)		11	Thurrock
H36-AIL5	London Gateway (with LTC)		12	Thurrock
H36-AIL6	Tilbury (with LTC)		12	Thurrock

H36-AIL5 – London Gateway to Stanford Road/Heath Road (without LTC)

4.2.162 The proposed route, a distance of 11km, will be for the Cable Drum AIL Delivery vehicle only and will take the route as shown in Figure 4.21.

4.2.163 The Cable Drum AIL Delivery vehicle using this route is classified as an STGO Category 3 movement.

Figure 4.21 H36-AIL5 London Gateway to Stanford Road/Heath Road (without LTC)



4.2.164 Discussions are ongoing with the LHA and Police to assess suitability of the route above. Essex Police hold the same concerns around London Gateway Port as per route H36-AIL1.

4.2.165 Input from National Highways is required for those sections which are on the SRN. Two structures owned by Thurrock Council are undergoing structural assessment as per route H36-AIL1. Engagement with Network Rail has concluded there are no known assets of theirs along this route.

4.2.166 The alignment of this route is based on the existing road alignment to allow for the event in which the road layout proposed as part of LTC scheme has not been constructed at the time of AIL deliveries.

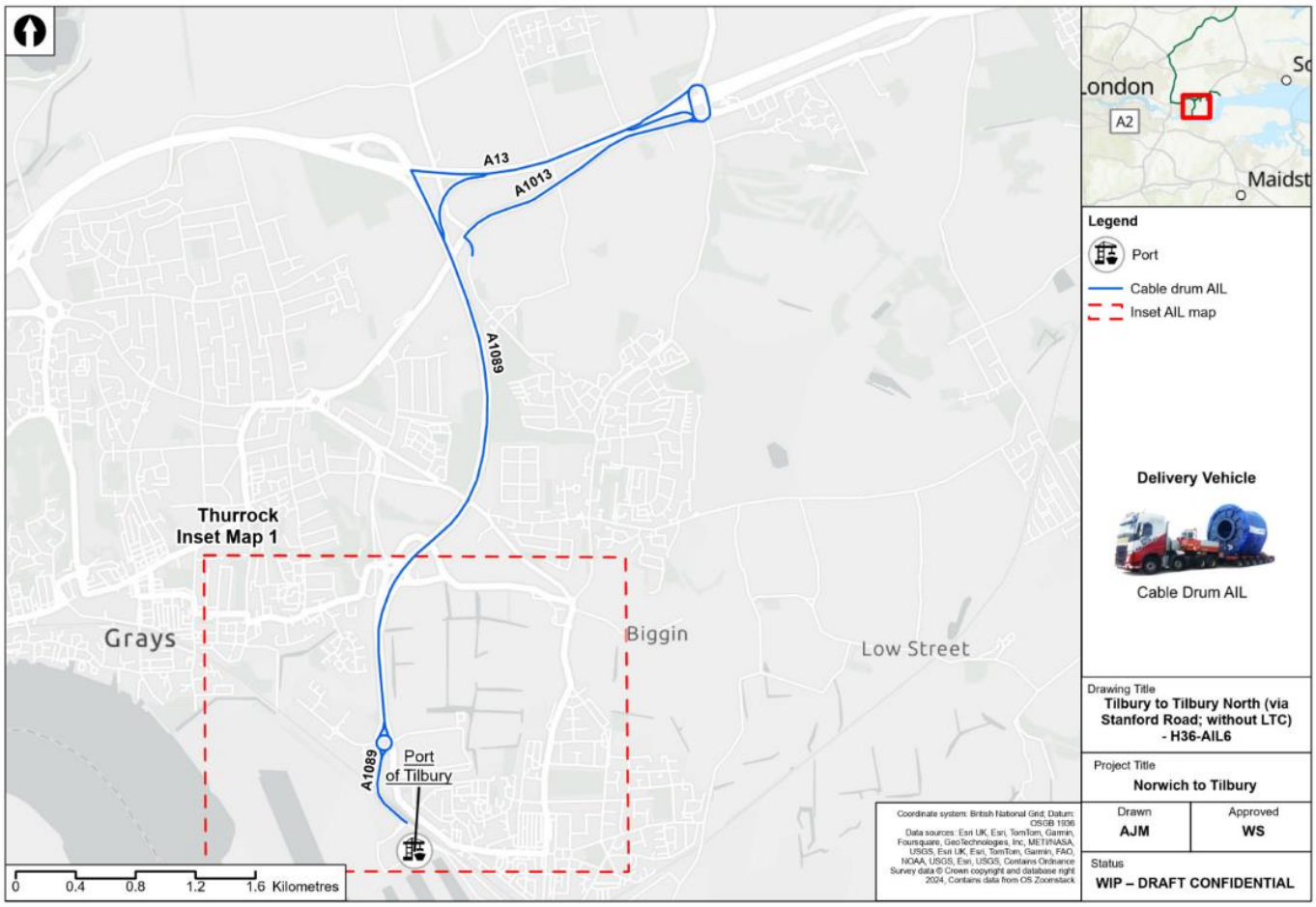
4.2.167 Based on the feedback received, route H36-AIL5 has been taken forward for further discussion and assessment.

H36-AIL6 – Tilbury to Stanford Road/Heath Road (without LTC)

4.2.168 The proposed route, a distance of 11km, will be for the Cable Drum AIL Delivery vehicle only and will take the route as shown in Figure 4.22.

4.2.169 The Cable Drum AIL Delivery vehicle using this route is classified as an STGO Category 3 movement.

Figure 4.22 H36-AIL6 Tilbury to Stanford Road/Heath Road (without LTC)



4.2.170 Discussions are ongoing with the LHA and Police to assess suitability of the route above. Essex Police hold the same concerns around the A1089/A13 as per route H36-AIL2.

4.2.171 Input from National Highways is required for those sections which are on the SRN. Engagement with Network Rail has concluded none of their assets along the route require further structural assessment by the Project team at this stage.

4.2.172 The alignment of this route is based on the existing road alignment to allow for the event in which the road layout proposed as part of LTC scheme has not been constructed at the time of AIL deliveries.

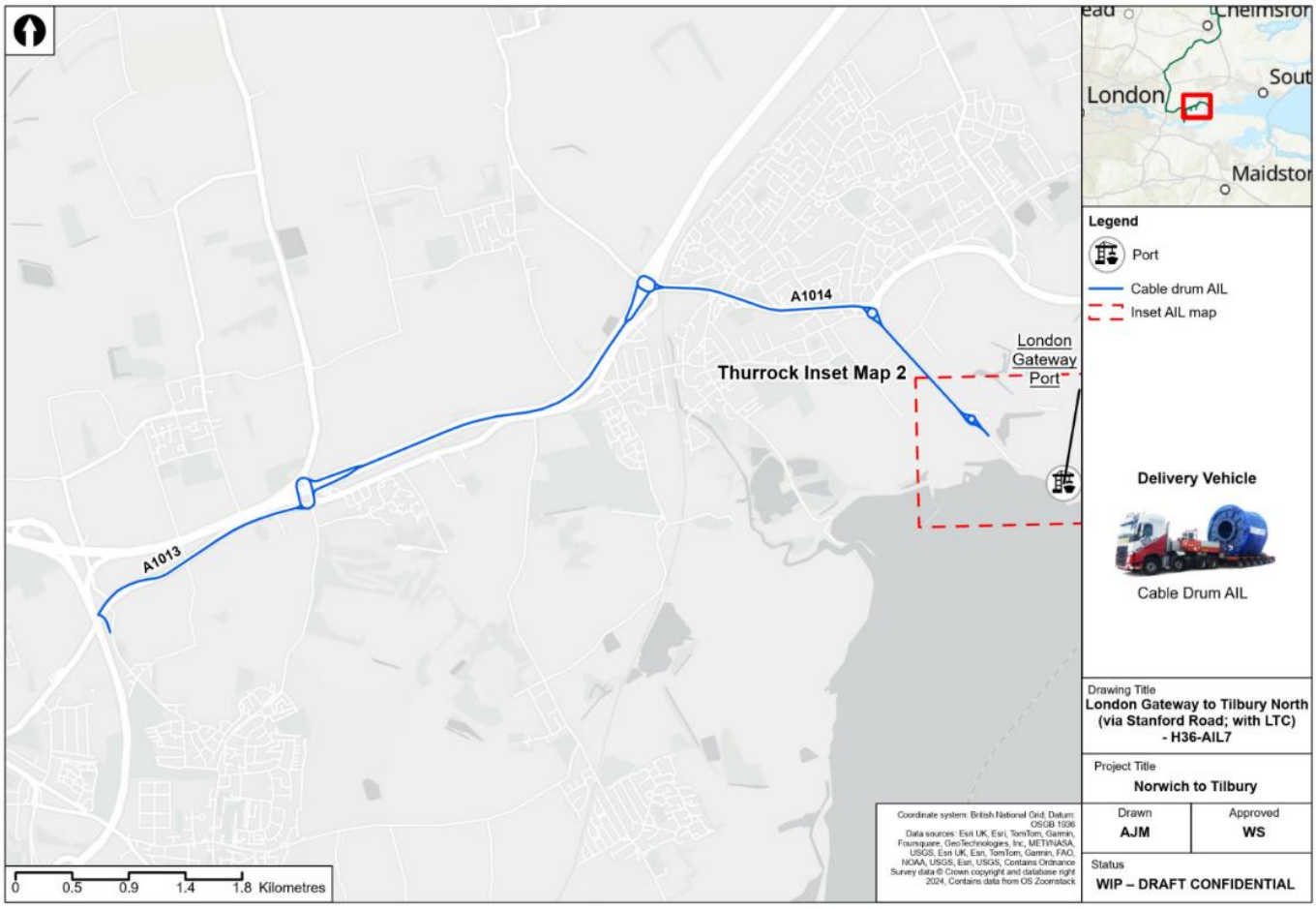
4.2.173 Based on the feedback received, route H36-AIL6 has been taken forward for further discussion and assessment.

H36-AIL7 – London Gateway to Stanford Road (with LTC)

4.2.174 The proposed route, a distance of 12km, will be for the Cable Drum AIL Delivery vehicle only and will take the route as shown in Figure 4.23.

4.2.175 The Cable Drum AIL Delivery vehicle using this route is classified as an STGO Category 3 movement.

Figure 4.23 H36-AIL7 London Gateway to Stanford Road (with LTC)



4.2.176 Discussions are ongoing with the LHA and Police to assess suitability of the route above. Essex Police hold the same concerns around London Gateway Port as per route H36-AIL1.

4.2.177 Input from National Highways is required for those sections which are on the SRN. Two structures owned by Thurrock Council are undergoing structural assessment as per route H36-AIL1. Engagement with Network Rail has concluded there are no known assets of theirs along this route.

4.2.178 The alignment of this route is based on the road layout proposed as part of the LTC scheme to allow for the event in which it has been constructed by the time AIL deliveries occur.

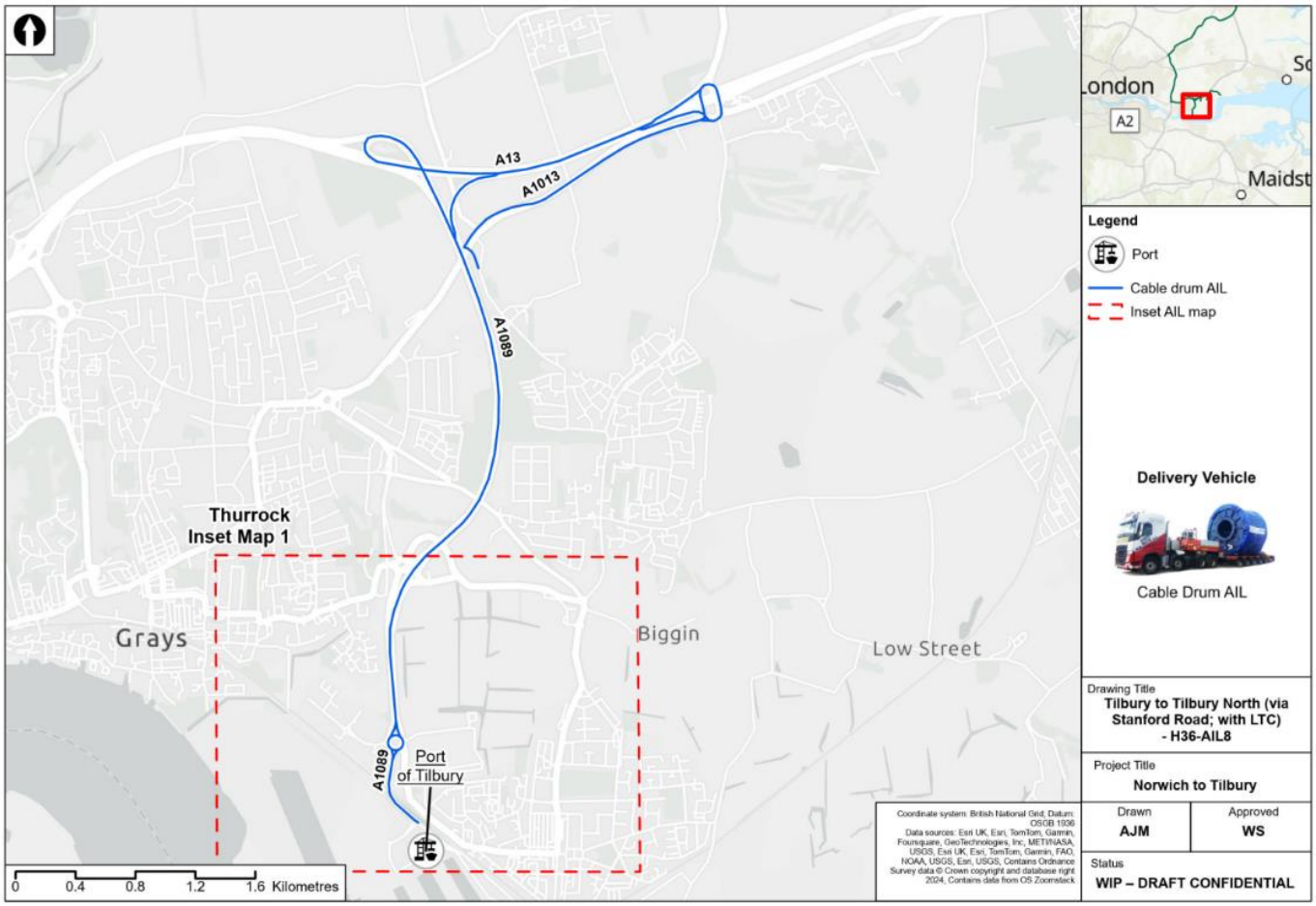
4.2.179 Based on the feedback received, route H36-AIL7 has been taken forward for further discussion and assessment.

H36-AIL8 – Tilbury to Stanford Road (with LTC)

4.2.180 The proposed route, a distance of 12km, will be for the Cable Drum AIL Delivery vehicle only and will take the route as shown in Figure 4.24.

4.2.181 The Cable Drum AIL Delivery vehicle using this route is classified as an STGO Category 3 movement.

Figure 4.24 H38-AIL8 Tilbury to Stanford Road (with LTC)



4.2.182 Discussions are ongoing with the LHA and Police to assess suitability of the route above.

4.2.183 Input from National Highways is required for those sections which are on the SRN. Engagement with Network Rail has concluded none of their assets along the route require further structural assessment by the Project team at this stage.

4.2.184 The alignment of this route is based on the road layout proposed as part of the LTC scheme to allow for the event in which it has been constructed by the time AIL deliveries occur.

4.2.185 Based on the feedback received, route H36-AIL8 has been taken forward for further discussion and assessment.

5. Transport

5.1 Trip Generation

5.1.1 Weekly construction vehicle requirements have been assessed for each of the access routes where AIL movements are expected.

5.1.2 These movements have been determined against the draft construction programme and will be therefore subject to change upon finalisation of the construction programme by the Main Works Contractor.

5.1.3 In common with other Nationally Significant Infrastructure Projects, the construction programme will be subject to change from factors such as procurement, system access requirements (outages), resource and material availability, weather and ground conditions.

5.1.4 The key assumptions for this data set are:

- Based on the construction programme outlined within the Environmental Statement (ES) Chapter 4: Project Description (document reference 6.4)
- Based on two cranes being per section of the route (unless stated otherwise, e.g. for H37-A1A/H37-A1B), hence there will be two AIL movements per arrival and two AIL movements per departure
- Based on total indicative AIL movements for the activity, broken down into weekly movements
- The indicative Cable Drum AIL Delivery vehicles are two-way vehicle movements (i.e. two-way vehicles, two trips = one vehicle)
- Transformer deliveries are displayed as one-way AIL movements. This includes one AIL movement to site per Transformer delivery, and two AIL movements from site per Transformer delivery. This is due to the nature of the delivery; requiring one AIL vehicle to site which is comprised of two smaller AIL vehicles connected (see Figure 2.9). Following delivery of the equipment to the site, it is anticipated the arrangement will be dismantled into two parts
- There are additional AIL movements associated with Transformer AIL Delivery vehicles which are not assigned to an LHA network. These movements are the two AIL movements (per Transformer) to the Port where the transformer will be delivered
- Cable Drum AIL delivery are assumed for the cable pulling activity, and Transformer AIL delivery movements are assumed for the electrical erection activity
- Where the number of required cable drums or transformers cannot be divided equally by the number of weeks in the programme, the deliveries have been front ended

- This AIL trip generation has been developed based on the cable lengths currently designed for underground cabling, transformers required for substation builds and crane movements associated with overhead line construction works. If an alternative approach was taken to deliver the materials for the Project, e.g. using multi-modal ports and sidings, the volume of AIL movements would not change

Large Mobile Crane AIL Delivery Movements

5.1.5 Table 5.1 shows the start and end dates associated with the Large Mobile Crane Programme within the full project programme. There are two cranes associated with each route (RG/JC and TB), four crane movements in total (with the exception of locations around Tilbury, in use between the dates shown within the table. The dates provided are illustrative and are dependent on the completion of prior construction phases).

5.1.6 Table 5.2 displays the Large Mobile Crane AIL movements associated with tower assembly and erection. The values have been developed based on the below assumptions:

- There are two gangs assigned to each programme section (RG/JC and TB)
- The Large Mobile Crane AILs join at the middle of each tower section and work both towards the start and end of each section simultaneously. The cranes remain on the internal haul road (where continuous) until the section is complete and then return.

5.1.7 Large Mobile Cranes are expected to enter via one PAR and exit via another using the construction haul road to move between towers and therefore avoiding impacts on the road network wherever possible. Where the haul road is severed, the crane will need to enter and exit along the same PAR and there is a crane assigned for each gang per section (two gangs per section). Hence, there are two crane movements in, and two crane movements out as displayed within Table 5.2.

- Large Mobile Crane AIL movements can use the crossover points to connect the haul road sections, without using the PARs
- The programme for these movements has been developed from the programme outlined within the ES Chapter 4: Project Description (document reference 6.4) and is subject to change.

5.1.8 Due to potential pinch points on the H04-A2/H05-A1 PARs through Diss, the Large Mobile Crane movements associated with the two PARs are assumed to travel through Thetford (H04B-A2/H05B-A1) and not through Diss.

5.1.9 The currently available information means the date range for the tower erection of the tower numbers accessed by each PAR is displayed for the potential movement dates, presented in Table 5.2

5.1.10 For the purpose of this document, where a PAR ends with more than one access bellmouth (e.g. one either side of the highway), multiple bellmouth IDs are listed within Table 5.2 (and Table 7.1) as associated with that PAR; lists are indicative.

Table 5.1 Large Mobile Crane AIL movements

Arrival PAR	Exit PAR	Indicative Programme Date Arrival	Indicative Programme Date Exit
H05-A2	H01-A1	October 2028	April 2029
H06-A1	H10-A2	April 2029	October 2029
H11-A1	H12-A1	October 2029	December 2029
H25-A2	H17-A2	August 2028	March 2029
H26-A1	H36-A1	March 2029	October 2029
H37-A1A/ H37-A1B	H38-A1A/ H38-A1B	September 2027	September 2030

Table 5.2 Indicative Large Mobile Crane AIL movements per PAR

PAR ID	Access Junction (Bellmouth) ID	Indicative Programme Dates	Route Length (km)	Total Proposed Crane Movements (Arrivals)	Total Proposed Crane Movements (Departures)
H01-A1	RG-B001	March 2029 – April 2029	1	2	2
H01-A2	RG-B010 & RG-B011	February 2029 – March 2029	7	2	2
H02-A1	RG-B012 & RG-B013	February 2029 – March 2029	9	2	2
H03-A1	RG-B012 & RG-B013	January 2029 – March 2029	9	2	2
H03-A2	RG-B038 & RG-B039	December 2028 – February 2029	7.5	2	0
H04-A1	RG-B038 & RG-B039	November 2028 – January 2029	7.5	0	2
H04-A2*	RG-B052 & RG-B053	November 2028 – December 2028	6	2	2
H05-A1*	RG-B052 & RG-B053	November 2028 – December 2028	6	2	2
H04B-A2	RG-B052 & RG-B053	November 2028 – November 2028	25	2	2
H05B-A1	RG-B052 & RG-B053	November 2028 – December 2028	25	2	2

PAR ID	Access Junction (Bellmouth) ID	Indicative Programme Dates	Route Length (km)	Total Proposed Crane Movements (Arrivals)	Total Proposed Crane Movements (Departures)
H05-A2	RG-B062 & RG-B063 & RG-B064	October 2028 – November 2028	6.5	2	2
H06-A1	RG-B065	April 2029 – May 2029	6.5	2	2
H06-A2	RG-B079	-	8	0	0
H07-A1	RG-B080	-	8	0	0
H07-A2	RG-B093 & RG-B094	May 2029 – July 2029	3.5	2	2
H08-A1	RG-B093 & RG-B094	June 2029 – July 2029	3.5	2	2
H09-A1	RG-B095 & RG-B096	July 2029 – August 2029	2.5	2	2
H10-A1	RG-B097 & RG-B098	July 2029 – September 2029	3.5	2	2
H10-A2	JC-B001	August 2029 – October 2029	5.5	2	2
H11-A1	JC-B001	October 2029 – October 2029	5.5	2	2
H11-A2	JC-B004 & JC-B005	October 2029 – November 2029	4	2	2
H12-A1	JC-B006	October 2029 – December 2029	4.5	2	2
H12-A2	JC-B022	-	0.5	0	0
H13-A1	JC-B022	-	0.5	0	0
H14-A1	JC-B039	-	0.35	0	0
H15-A1	JC-B052	-	1.5	0	0
H16-A1	JC-B053	-	0.5	0	0
H17-A2	JC-B070	February 2029 – March 2029	5	2	2
H18-A1**	TB-B015	January 2029 – March 2029	1	2	2
H19-A1	TB-B016	January 2029 – February 2029	1.5	2	2

PAR ID	Access Junction (Bellmouth) ID	Indicative Programme Dates	Route Length (km)	Total Proposed Crane Movements (Arrivals)	Total Proposed Crane Movements (Departures)
H19-A2	TB-B022 & TB-B023	-	5	0	0
H20-A1	TB-B022 & TB-B023	-	5	0	0
H20-A2	TB-B047 & TB-B048	-	3.5	0	0
H21-A1	TB-B047 & TB-B048	November 2028 – January 2029	3	2	2
H22-A1	TB-B047 & TB-B048	November 2028 – January 2029	3	2	2
H23-A1	TB-B053 & TB-B054	October 2028 – November 2028	1	2	2
H24-A1	TB-B059	October 2028 – November 2028	>0.1	2	2
H24-A2	TB-B074	September 2028 – October 2028	5	2	2
H25-A1	TB-B076 & TB-B077	August 2028 – September 2028	7	2	2
H25-A2 / H25-A2B***	TB-B090	August 2028 – August 2028	9/8	2	2
H26-A1	TB-B091	March 2029 – April 2029	10	2	2
H27-A1	TB-B092 & TB-B093	March 2029 – April 2029	10	2	2
H28-A1	TB-B094 & TB-B095	March 2029 – April 2029	11.5	2	2
H28-A2	TB-B102	April 2029 – May 2029	10.5	2	2
H29-A1	TB-B104	April 2029 – May 2029	10.5	2	2
H29-A2	TB-B106 & TB-B107	May 2029 – May 2029	7.5	2	2
H30-A1	TB-B106 & TB-B107	May 2029 – June 2029	7.5	2	2
H30-A2	TB-B112 & TB-B113	May 2029 – June 2029	2	2	2
H31-A1	TB-B117	June 2029 – July 2029	2	2	2

PAR ID	Access Junction (Bellmouth) ID	Indicative Programme Dates	Route Length (km)	Total Proposed Crane Movements (Arrivals)	Total Proposed Crane Movements (Departures)
H32-A1****	TB-B117	June 2029 – July 2029	2	2	2
H32-A2****	TB-B122 & TB-B123	June 2029 – July 2029	4.5 or 3*****	2	2
H33-A1	TB-B125	July 2029 – July 2029	9	2	2
H33-A2	TB-B132	July 2029 – August 2029	0.3	2	2
H34-A1	TB-B133 & TB-B134	August 2029 – August 2029	0.5	2	2
H35-A1	TB-B137	August 2029 – October 2029	>0.1	2	2
H36-A1	TN-B014	September 2029 – October 2029	3.5	2	2
H36-A2	TN-B007A & TN-B007A1	-	1	0	0
H37-A1A / H37-A1B	TN-B004A / TN-B004B	September 2027 – September 2030	2	11	11
H37-A2	TN-B015A / TN-B015B & TN-B016	-	4	0	0
H38-A1A / H38-A1B	TN-B003A / TN-B003B	September 2027 – September 2030	2	4	4

** Preference is to route Large Mobile Crane AILs along the A1066 via Thetford rather than Diss (i.e. PAR H04B-A2, H05B-A1).*

*** The Large Mobile Crane AIL will not use the Wick Lane section of H18-A1 to access the severed haul road over Ardleigh Reservoir. Feedback received from Anglian Water on 29/11/2024 noted that the culvert structure along Wick Lane can only accommodate loads up to 44-tonnes. Therefore, it is proposed that access to the West of the reservoir will be via Old Ipswich Road along the remaining section of H18-A1 and access to the East of the reservoir will be from the North via Birchwood Road (H16-A1) and along the haul road.*

**** H25-A2B is an alternative route option for H25-A2 to align with Chelmsford Northeast Bypass if required.*

***** The Large Mobile Crane AIL will not use the section of H32-A1 which passes over the rail bridge at Ingatestone. This is due to structural assessment results confirming that the bridge cannot support the AIL vehicle – see paragraph 3.5.5. Therefore, to access the haul road section North of the railway line, the Large Mobile Crane will exit the A12 and travel along the northern section of H32-A1 via Margaretting. To access the haul road section to the South of the railway line, the Large Mobile Crane will use H32-A2.*

****** When accessing via H32-A2, the Large Mobile Crane AIL will only require access and egress from the East or West. Approaching and exiting from the East via Mountnessing = 4.5km route length, approaching and exiting from West via Billericay = 3km.*

Cable Drum AIL Delivery Movements

5.1.11 Table 5.3 displays the indicative total weekly movements associated with the Cable Drum AIL Delivery vehicles. These movements include cable drum delivery to site, and removal from site, using the PARs, following the cable pulling activities. It should be noted there is a discrepancy between the number of weeks assigned within the programmes for ‘cable pulling’; activities and the number of weeks for deliveries. This is due to the deliveries being front loaded onto the programme, and numbers being rounded up, where 0.5 of a cable drum is being delivered per week based on a flat delivery profile. There is an additional AIL movement per cable drum to account for the AIL movement to the Port to collect the drum. These movements have not been assigned to the LHA due to their unknown depot location.

5.1.12 Cable drum deliveries for H15-A1 have been assigned to H14-A1, as routeing through Langham is not suitable. This means that the cable pulling movements associated with that PAR have no AIL trip generation associated with them.

5.1.13 The cable drum estimate for Fairstead is based on three AIL movements. Due to the short length of cabling required for this section, there is an alternative option to provide the cabling in smaller sections, which would not require an AIL vehicle. For the purposes of this assessment, a worst-case option as an AIL has been assumed.

5.1.14 The cable construction compounds have been designed to provide storage for 50% of the cable drums required for each section. This has not been considered within the programming of the cable drum deliveries, to provide a worst-case estimate. If the storage facility was to be used before the commencement of the cable pulling activities, the programme for deliveries would be elongated, reducing the number of AIL movements per week.

5.1.15 For the purpose of this document, alternative destination references are given in Table 5.3 to describe the approximate location of Cable Drum delivery destinations. Compound references (e.g. RG-SC02) are also given per destination point. For more details on compounds, refer to the main body of the Outline CTMP (document reference 7.3).

Table 5.3 Indicative Cable Drum AIL delivery movements

PAR ID	AIL Route ID	Destination (Description, Compound Reference)	Alternative Destination Reference	Indicative Programme Dates	Additional Movements (to Port)	Total Movements (PARs)	Weekly Movements (PARS)	Number of Weeks (Programme)
H12-A2	H13-AIL1, H13-AIL2	Land off B1070, Raydon (JC-CC02)	Holton St Mary Compound	January 2029 – April 2029	108	216	16	16
H12-A2	H13-AIL1, H13-AIL2	Land off B1070, Raydon (JC-CC02)	Holton St Mary Compound	June 2029 – September 2029	128	256	16	16
H12-A2	H13-AIL1, H13-AIL2	Land off B1070, Raydon (JC-CC02)	Holton St Mary Compound	December 2029 – December 2029	12	24	8	4
H12-A2	H13-AIL1, H13-AIL2	Land off B1070, Raydon (JC-CC02)	Holton St Mary Compound	September 2029 – October 2029	26	52	12	6
H12-A2	H13-AIL1, H13-AIL2	Land off B1070, Raydon (JC-CC02)	Holton St Mary Compound	July 2030 – August 2030	10	20	8	4
H14-A1	H14-AIL1, H14-AIL2	Land off Dedham Road, north of Langham (JC-CC03)	Langham Hall Compound	September 2029 – February 2030	204	408	16	26
H15-A1	H14-AIL1, H14-AIL2	Land off Dedham Road, north of Langham (JC-CC03)	Langham Hall Compound	January 2029 – January 2029	6	12	4	3

PAR ID	AIL Route ID	Destination (Description, Compound Reference)	Alternative Destination Reference	Indicative Programme Dates	Additional Movements (to Port)	Total Movements (PARs)	Weekly Movements (PARS)	Number of Weeks (Programme)
H16-A1	H16-AIL1, H16-AIL2	Land south of Birchwood Road, to the west of Lamb Corner, Colchester (JC-CC04)	Birchwood Road Compound	April 2029 – July 2029	144	288	20	15
H16-A1	H16-AIL1, H16-AIL2	Land south of Birchwood Road, to the west of Lamb Corner, Colchester (JC-CC04)	Birchwood Road Compound	August 2029 – September 2029	4	8	4	4
H17-A2	H17-AIL1, H17-AIL2	Land south of Little Bromley Road, Bradley Hall, Tendring (JC-CC05)	EACN Substation	September 2028 – October 2028	68	136	24	6
H19-A2/ H20-A1	H19-AIL1, H19-AIL2	Land north of Broad Lane, Great Horkesley (TB-CC02)	Great Horkesley Compound	January 2029 – April 2029	112	224	16	16
H19-A2/ H20-A1	H19-AIL1, H19-AIL2	Land north of Broad Lane, Great Horkesley (TB-CC02)	Great Horkesley Compound	September 2028 – October 2028	36	72	12	6

PAR ID	AIL Route ID	Destination (Description, Compound Reference)	Alternative Destination Reference	Indicative Programme Dates	Additional Movements (to Port)	Total Movements (PARs)	Weekly Movements (PARS)	Number of Weeks (Programme)
H28-A1	H25-AIL3, H25-AIL4, H25-AIL5, H25-AIL6	Land east of Fairstead Road, north of Fairstead (TB-CC06)	Fairstead Compound	June 2028 – July 2028	6	12	4	6
H36-A1	H36-AIL1, H36-AIL2	N/A	Buckingham Hill Road	-	0	0	0	0
H36-A2	H36-AIL3, H36-AIL4	N/A	Brentwood Road	-	0	0	0	0
H37-A1A, H37-A1B	H36-AIL5, H36-AIL6, H36-AIL7, H36-AIL8	Site west of Hoford Road and east of Brentwood Road (ZB-CC02)	Stanford Road / Heath Road	March 2029 – April 2029	20	40	8	6

Transformer AIL Delivery Movements

5.1.16 Table 5.4 displays the indicative total weekly movements associated with the Transformer AIL Delivery vehicles. It should be noted there is a discrepancy between the number of weeks assigned within the programmes for 'Electrical Erection'; activities which require transformers, and the number of weeks for deliveries. This is due to the deliveries being front loaded onto the programme, and numbers being rounded up, where 0.5 of a transformer being delivered per week is based on a flat delivery profile.

5.1.17 It has been assumed that all movements associated with the transformer delivery occur within the same programme period. This means that the AIL movements to the Port, from Port to site and from site to PARs occur within the same period.

5.1.18 The Transformer AIL Delivery vehicle movements have been broken down below:

- 2No. AIL movements to the Port – these have not been assigned to a PAR or an LHA, as the origin of these trips is currently unknown.
- 1No. AIL movement from Port to site – this will use PARs
- 2No. AIL movements from site after delivery – these will use PARs.

5.1.19 For the purpose of this document, alternative destination references are given in Table 5.4 to describe the approximate location of Transformer delivery destinations. Compound references (e.g. RG-SC02) are also given per destination point. For more details on compounds, refer to the main body of the Outline CTMP (document reference 7.3).

Table 5.4 Indicative Transformer AIL delivery movements

PAR ID	AIL Route ID	Destination (Description, Compound Reference)	Alternative Destination Reference	Additional Movements (to Port)	Total Movements (PARs)	Weekly Movements (PARs)	Number of Weeks (Programme)
H10-A2	H11-AIL1	Land to the east of Bramford Substation, Mid Suffolk (RG-SC02)	Bramford Substation	4	6	3	12
H17-A2	H17-AIL1, H17-AIL2	Land at the EACN Substation, Tendring (JC-SC06 and JC-SC07)	EACN Substation	16	24	3	32
H36-A1	H36-AIL1, H36-AIL2	Site north of Hoford Road, adjacent to Orsett Golf Club, Thurrock (TB-SC08)	Buckingham Hill Road (Tilbury North Substation)	22	33	3	24
H36-A2	H36-AIL3, H36-AIL4	Site north of Hoford Road, adjacent to Orsett Golf Club, Thurrock (TB-SC08)	Brentwood Road (Tilbury North Substation)	22	33	3	24

6. AIL Movement Procedures

6.1 Overview

6.1.1 This section outlines the procedures associated with transportation of the AILs required for the Project. The Main Works Contractor will be responsible for managing and adhering to these processes.

6.2 ESDAL

6.2.1 The ESDAL system is managed by the DfT and National Highways. It is a tool used by contractors/hauliers to plan routes and notify relevant authorities, including structure owners, highway authorities, and the Local Constabulary, when transporting abnormal loads (including AILs).

6.2.2 The police, road or bridge authority use the ESDAL system to:

- Manage haulier's abnormal load notifications
- Check the suitability of the haulier's proposed route.

6.2.3 While ESDAL assists in route planning for abnormal loads, its accuracy relies on the data provided. In certain cases, the system may lack information about all the structures along the route, prompting users to reach out to local authorities for additional details. Furthermore, the system’s flexibility is limited, as it only provides predefined vehicle configuration options. As a result, the loading arrangement must conform to the available categories.

6.3 Local Council Abnormal Load Movements

6.3.1 Contractors/hauliers must notify the highway authority for the routes they want to use before moving an abnormal load. The load must not be moved until the highway authority has given consent. The routeing information, along with the vehicle axle loads and arrangements, must be sent to the relevant highway authority for assessment of structures under their ownership to determine if it can handle the load.

6.4 Police Liaison

6.4.1 The local police must be notified of AIL movements to ensure the safe and efficient transport of oversized or heavy loads. A police escort is required when the width of the vehicle exceeds the road width resulting in vehicle overhang on the opposite lane. The ESDAL system can be used to notify the police prior to AIL movements occurring. In urban areas, a police escort can help manage traffic and ensure public safety.

6.4.2 As part of the Norwich to Tilbury scheme, engagement with local constabulary is ongoing to ensure that adequate resources are in place to facilitate the AIL movements required. Discussions about movement frequency, dates, and vehicle

specifications have been passed on to allow the local constabulary to conduct their modelling work.

6.4.3 Where local police impose embargo times on escorting AIL vehicles, these will be considered during continued engagement as the programme for AIL movements is developed in more detail with the Main Works Contractor. For example, Essex Police have declared embargo times between 0700-0900hrs and 1600-1800hrs (Monday to Friday) and during hours of darkness.

6.5 Emergency Response

6.5.1 In the event of an emergency or accident along the route, the AIL vehicle will stop and remain stationary. The AIL vehicle is restricted to travel exclusively on its predefined and approved route and cannot be diverted to any alternative routes. The vehicle will only proceed when it is safe to do so; otherwise, it will remain stationary. The precise location for emergency stops and related details will be determined by the specialist haulage company during a later stage upon their appointment.

6.6 Highways Act 1980, Section 59 – Recovery of Expenses due to Extraordinary Traffic

6.6.1 Section 59 of the Highways Act 1980 allows the highway authority to recover expenses due to extraordinary traffic on a highway maintainable at public expense by the user. If the damage results from excessive weight or other exceptional traffic, the authority can seek reimbursement from the person responsible for directing that traffic. However, if the operator admits liability before the damage occurs, they may agree to pay a composition or determine the sum through arbitration. Proceedings for recovery must commence within 12 months of the damage or, in the case of long-term contracts, within six months of contract completion.

6.7 Removal and Replacement of Street Furniture

6.7.1 The removal and replacement of street furniture is likely to be required to facilitate AIL movements and is generally managed under Traffic Regulation Order (TRO), Temporary Traffic Regulation Order (TTRO) and Street Works Legislations. The removal and replacement of street furniture is typically organised by the contractor/haulier however, in some circumstances the highway authority or local authority may insist that their preferred contractor carry out these works.

6.8 Road Condition Surveys

6.8.1 Prior to the start, and following completion, for each stage of the project, road condition surveys for the routes will be undertaken and agreed with each of the affected LHAs. These surveys will inform any works that may be required to rectify specific damage to the road network as a direct result of construction work.

6.8.2 A visual road condition survey is a simple survey to record the condition of the road only, the road is walked with photographs taken at regular intervals to record the condition of the road.

6.8.3 It is anticipated that two surveys are to be taken – one before and one after each stage of the project – so that they can be compared to determine if any damage has been caused to the road surface by the construction traffic (including the movement of AILs) and appropriate repairs can be undertaken as necessary.

6.8.4 Subject to negotiation with the affected Highway Authority, repairs can either be undertaken by the developer, or a contribution can be made to the relevant Highway Authority to enable them to undertake the repairs.

7. Summary

7.1 Summary of Large Mobile Crane AIL Routes

7.1.1 Large Mobile Crane AILs will use the PARs to reach site access points. A summary of the total Large Mobile Crane AIL movements, along with affected LHA for each PAR is given in Table 7.1 below. The Large Mobile Crane movements associated with H04-A2/H05-A1 are assumed to travel through Thetford (routes H04B-A2/H05B-A1) and not through Diss; this is subject to developments in modelling and therefore are included for completeness at this stage of the project.

Table 7.1 Large Mobile Crane AIL route summary from PARs to site access points

PAR ID	Access Junction (Bellmouth) ID	Total Movements (Arrivals + Departures)	Route Length (km)	Affected LHA
H01-A1	RG-B001	4	1	Norfolk
H01-A2	RG-B010 & RG-B011	4	7	Norfolk
H02-A1	RG-B012 & RG-B013	4	9	Norfolk
H03-A1	RG-B012 & RG-B013	4	9	Norfolk
H03-A2	RG-B038 & RG-B039	2	7.5	Norfolk
H04-A1	RG-B038 & RG-B039	2	7.5	Norfolk
H04-A2*	RG-B052 & RG-B053	4	6	Norfolk
H05-A1*	RG-B052 & RG-B053	4	6	Norfolk
H04B-A2	RG-B052 & RG-B053	2	25	Norfolk
H05B-A1	RG-B052 & RG-B053	2	25	Norfolk
H05-A2	RG-B062 & RG-B063 & RG-B064	4	6.5	Suffolk
H06-A1	RG-B065	4	6.5	Suffolk
H06-A2	RG-B078 & RG-B079	0	8	Suffolk
H07-A1	RG-B080	0	8	Suffolk
H07-A2	RG-B093 & RG-B094	4	3.5	Suffolk
H08-A1	RG-B093 & RG-B094	4	3.5	Suffolk
H09-A1	RG-B095 & RG-B096	4	2.5	Suffolk
H10-A1	RG-B097 & RG-B098	4	3.5	Suffolk
H10-A2	JC-B001	4	5.5	Suffolk

PAR ID	Access Junction (Bellmouth) ID	Total Movements (Arrivals + Departures)	Route Length (km)	Affected LHA
H11-A1	JC-B001	4	5.5	Suffolk
H11-A2	JC-B004 & JC-B005	4	4	Suffolk
H12-A1	JC-B006	4	4.5	Suffolk
H12-A2	JC-B022	0	0.5	Suffolk
H13-A1	JC-B022	0	0.5	Suffolk
H14-A1	JC-B039	0	0.35	Essex
H15-A1	JC-B052	0	1.5	Essex
H16-A1	JC-B053	0	0.5	Essex
H17-A2	JC-B070	4	5	Essex
H18-A1**	TB-B015	4	1	Essex
H19-A1	TB-B016	4	1.5	Essex
H19-A2	TB-B022 & TB-B023	0	5	Essex
H20-A1	TB-B022 & TB-B023	0	5	Essex
H20-A2	TB-B047 & TB-B048	0	3.5	Essex
H21-A1	TB-B047 & TB-B048	4	3	Essex
H22-A1	TB-B047 & TB-B048	4	3	Essex
H23-A1	TB-B053 & TB-B054	4	1	Essex
H24-A1	TB-B059	4	>0.1	Essex
H24-A2	TB-B074	4	5	Essex
H25-A1	TB-B076 & TB-B077	4	7	Essex
H25-A2 / H25-A2B***	TB-B090	4	9/8	Essex
H26-A1	TB-B091	4	10	Essex
H27-A1	TB-B092 & TB-B093	4	10	Essex
H28-A1	TB-B094 & TB-B095	4	11.5	Essex
H28-A2	TB-B102	4	10.5	Essex
H29-A1	TB-B104	4	10.5	Essex
H29-A2	TB-B106 & TB-B107	4	7.5	Essex
H30-A1	TB-B106 & TB-B107	4	7.5	Essex

PAR ID	Access Junction (Bellmouth) ID	Total Movements (Arrivals + Departures)	Route Length (km)	Affected LHA
H30-A2	TB-B112 & TB-B113	4	2	Essex
H31-A1	TB-B117	4	2	Essex
H32-A1****	TB-B117	4	2	Essex
H32-A2****	TB-B122 & TB-B123	4	4.5 or 3*****	Essex
H33-A1	TB-B125	4	9	Essex
H33-A2	TB-B132	4	0.3	Essex
H34-A1	TB-B133 & TB-B134	4	0.5	Essex
H35-A1	TB-B137	4	>0.1	Thurrock
H36-A1	TN-B014	4	3.5	Thurrock
H36-A2	TN-B007A & TN-B007A1	0	1	Thurrock
H37-A1A / H31-A1B	TN-B004A / TN-B004B	22	2	Thurrock
H37-A2	TN-B015A / TN-B015B & TN-B016	0	4	Thurrock
H38-A1A / H38-A1B	TN-B003A / TN-B003B	8	2	Thurrock

** Preference is to route Large Mobile Crane AILs along the A1066 via Thetford rather than Diss (i.e. PAR H04B-A2, H05B-A1).*

*** The Large Mobile Crane AIL will not use the Wick Lane section of H18-A1 to access the severed haul road over Ardleigh Reservoir. Feedback received from Anglian Water on 29/11/2024 noted that the culvert structure along Wick Lane can only accommodate loads up to 44-tonnes. Therefore, it is proposed that access to the West of the reservoir will be via Old Ipswich Road along the remaining section of H18-A1 and access to the East of the reservoir will be from the North via Birchwood Road (H16-A1) and along the haul road.*

**** H25-A2B is an alternative route option for H25-A2 to align with Chelmsford Northeast Bypass if required.*

***** The Large Mobile Crane AIL will not use the section of H32-A1 which passes over the rail bridge at Ingatestone. This is due to structural assessment results confirming that the bridge cannot support the AIL vehicle – see paragraph 3.5.5. Therefore, to access the haul road section North of the railway line, the Large Mobile Crane will exit the A12 and travel along the northern section of H32-A1 via Margaretting. To access the haul road section to the South of the railway line, the Large Mobile Crane will use H32-A2.*

****** When accessing via H32-A2, the Large Mobile Crane AIL will only require access and egress from the East or West. Approaching and exiting from the East via Mountnessing = 4.5km route length, approaching and exiting from West via Billericay = 3km.*

7.2 Summary of Cable Drum and Transformer AIL Routes

7.2.1 Based on the discussions with the LHAs, National Highways, and Local Constabulary, the routes shown in Table 7.2 for the Cable Drum and Transformer AIL Delivery vehicles have been taken forward for further discussion and assessment.

Table 7.2 Cable Drum and Transformer AIL route summary from coastal ports to site locations

AIL Route ID	Start Location (Port)	Destination (Description, Compound Reference)	Alternative Destination Reference*	Total Movements	AIL Vehicle Type	Route Length (km)**	Affected LHA
H11-AIL1	Ipswich (via Sproughton)	Land to the east of Bramford Substation, Mid Suffolk (RG-SC02)	Bramford Substation	6	Transformer	15 (W), 30 (E)	Suffolk
H13-AIL1/ H13-AIL2	Ipswich/ Harwich	Land off B1070, Raydon (JC-CC02)	Holton St Mary Compound	568	Cable Drum	29 (W), 44 (E)/ 42	Suffolk, Essex
H14-AIL1/ H14-AIL2	Ipswich/ Harwich	Land off Dedham Road, north of Langham (JC-CC03)	Langham Hall Compound	420	Cable Drum	27 (W), 42 (E)/ 34	Suffolk, Essex
H16-AIL1/ H16-AIL2	Ipswich/ Harwich	Land south of Birchwood Road, to the west of Lamb Corner, Colchester (JC-CC04)	Birchwood Road Compound	296	Cable Drum	27 (W), 42 (E)/ 50	Suffolk, Essex
H17-AIL1/ H17-AIL2	Harwich/ Ipswich	Land south of Little Bromley Road, Bradley Hall, Tendring (JC-CC05), Land at the EACN Substation, Tendring (JC-SC06, JC-SC07)	EACN Substation	24 (T) 136 (CD)**	Transformer and Cable Drum	22/ 43 (W), 58 (E)	Suffolk, Essex
H19-AIL1/ H19-AIL2	Harwich/ Ipswich	Land north of Broad Lane, Great Horkesley (TB-CC02)	Great Horkesley Compound	296	Cable Drum	37 35 (W) / 48 (E)	Suffolk, Essex

AIL Route ID	Start Location (Port)	Destination (Description, Compound Reference)	Alternative Destination Reference*	Total Movements	AIL Vehicle Type	Route Length (km)**	Affected LHA
H25-AIL3/ H25-AIL4/ H25-AIL5/ H26-AIL6	Harwich/ Ipswich/ Tilbury (via M25)/ London Gateway (via M25)	Land east of Fairstead Road, north of Fairstead (TB-CC06)	Fairstead Compound	12	Cable Drum	72/ 69 (W), 84 (E)/ 67/ 72	Suffolk, Essex, Thurrock
H36-AIL1/ H36-AIL2	London Gateway/ Tilbury	Site north of Hoford Road, adjacent to Orsett Golf Club, Thurrock (TB-SC08)	Buckingham Hill Road (Tilbury North Substation)	33	Transformer	7/ 13	Thurrock
H36-AIL3/ H36-AIL4	London Gateway/ Tilbury	Site north of Hoford Road, adjacent to Orsett Golf Club, Thurrock (TB-SC08)	Brentwood Road (Tilbury North Substation)	33	Transformer	11/ 11	Thurrock
H36-AIL5/ H36-AIL6/ H36-AIL7/ H36-AIL8	London Gateway/ Tilbury/ London Gateway/ Tilbury	Site west of Hoford Road and east of Brentwood Road (ZB-CC02)	Stanford Road/ Heath Road	40	Cable Drum	11/ 11/ 12/ 12	Thurrock

** Alternative location references given to describe the approximate location of Cable Drum/Transformer delivery destinations. Compound references (e.g. RG-SC02) are also given per destination point. For more details on compounds, refer to the main body of the Outline CTMP (document reference 7.3).*

*** Distances marked (W) and (E) represent the AIL route from the West Bank Quay terminal and East Bank Quay terminal respectively at the Port of Ipswich. Both options are kept open at the current stage of the project due to stakeholder feedback regarding routes originating from Ipswich (see Section 4.2).*

**** (T) denotes Transformer movements, (CD) denotes Cable Drum movements*

7.3 Route Assessment Summary

7.3.1 Potential routes for AIL deliveries have been explored based on construction requirements for the Project. Through engagement with the LHAs, National Highways, and Local Constabulary, certain AIL route options have been discounted due to historical reasons, insufficient structural capacity and/or policy non-compliance.

7.3.2 Where a structure has been identified through LHA engagement as requiring a detailed structural assessment and sufficient record information has been provided by the asset owner, the process to assess it commenced prior to DCO submission. This process includes development of a formal Approval in Principle (AiP) which requires sign-off by the relevant authority and the relevant certificates to be appointed. This process will continue beyond the DCO submission under management of the Main Works Contractor.

7.3.3 Interactions with Network Rail assets including under/overbridges and level crossings have been reviewed. Through engagement with Network Rail, a total of two were identified as requiring further structural assessments, which commenced prior to DCO submission. A third rail bridge located on private land also required assessment which has been completed by the Project team, with approval signed off by Network Rail.

7.3.4 The relevant Local Constabulary forces have been engaged to discuss the proposed AIL routes. Ongoing engagement is required from the Main Works Contractor to develop the routeing strategy and inform their abnormal load modelling in order to manage the impacts to the Local Constabulary.

7.4 Conclusion

7.4.1 This report has outlined the access strategy for delivery of AILs on the Project and identified feasible transportation routes based on early engagement with stakeholders. Route optionality to reach the required destinations remains open at this stage of the Project where feasible.

7.4.2 The Main Works Contractor will be responsible for developing the AIL access strategy, including continuation of the structural checks process, confirming preferred routes where appropriate and progressing towards formal movement applications (including securing necessary permits), pursuant to established procedures, which will need to be submitted closer to the time of movements.

Abbreviations

Abbreviation	Full Reference
AIL	Abnormal Indivisible Load
AiP	Approval in Principle
BTNO	Bramford to Twinstead Reinforcement
CSE	Cable Sealing End
CTMP	Construction Traffic Management Plan
DCO	Development Consent Order
DfT	Department for Transport
DMRB	Design Manual for Roads and Bridges
DPE	Designated Project Engineer
E	East
EACN	East Anglia Connection Node
EN-1	Overarching National Policy Statement for Energy
ES	Environmental Statement
ESDAL	Electronic Service Delivery for Abnormal Loads
HDD	Horizontal Directional Drilling
HGV	Heavy Goods Vehicle
km	Kilometre
kV	Kilovolt
LHA	Local Highways Authority
LTC	Lower Thames Crossing
m	Metre
MRN	Major Road Network
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Project
OS	Ordnance Survey
PAR	Primary Access Route
Q1/Q2	Quarter 1/Quarter 2 (1st Quarter/2nd Quarter)
SGT	Super Grid Transformer

Abbreviation	Full Reference
SO	Special Order
SPA	Swept Path Analysis
SRN	Strategic Road Network
STGO	Special Types General Order
TA	Transport Assessment
TROs	Traffic Regulation Orders
TTROs	Temporary Traffic Regulation Orders
W	West

Glossary

Term	Description
Abnormal load	A vehicle which has a weight of more than 40,000kg; or an axle load of more than 10,000kg for a single non-driving axle and 11,500kg for a single driving axle; or a width of more than 2.9 m; or a rigid length of more than 18.65m.
Abnormal Indivisible Load (AIL)	A vehicle that is used to transport very large equipment which by the nature of the equipment cannot be broken into smaller multiple deliveries, and has a weight of more than 44,000kg; or an axle load of more than 10,000kg for a single non-driving axle and 11,500kg for a single driving axle; or a width of more than 2.9m; or a rigid length of more than 18.65m.
Bellmouth	A flared vehicular access point connecting a construction site to the public highway, designed to accommodate turning movements by large vehicles.
Cable drum	Cylindrical object used to transport cables.
Cable Sealing End (CSE)	Structures used to transfer transmission circuits between underground cables and overhead lines.
Cable Sealing End compound	Electrical infrastructure used as the transition point between overhead lines and underground cables. A compound on the ground acts as the principal transition point.
Construction Traffic Management Plan	Plan detailing the procedures, requirements and standards necessary for managing the traffic effects during construction of the project so that safe, adequate and convenient facilities for local movements by all transport modes are maintained throughout the construction process.
Development Consent Order	A statutory instrument which grants consents and other rights to build a Nationally Significant Infrastructure Project, as defined by the Planning Act 2008.
Environmental Impact Assessment (EIA)	An assessment of the likely effects of a development project on the environment, which is reported in an Environmental Statement that is publicised and consulted on and taken into account in the decision on whether a project should proceed.
Environmental Statement (ES)	The main output from the EIA process, an ES is the report required to accompany an application for development consent (under the Infrastructure Planning (EIA) Regulations 2017) to inform public and stakeholder consultation and the decision on whether a project should be allowed to proceed. The EIA Regulations set out specific requirements for the contents of an ES for Nationally Significant Infrastructure Projects.

Term	Description
Electronic Service Delivery for Abnormal Loads (ESDAL)	National service for managing abnormal loads; used to notify Police, highway and structures authorities of abnormal load movements.
Haul road	Another term used for the temporary access route, which is a temporary route built to carry construction vehicles within the Order Limits.
Kilometre	1,000 metres.
Local Highway Authority (LHA)	The public authority whose duty it is to maintain and protect the safety and usability of public roads.
Lower Thames Crossing (LTC)	The Lower Thames Crossing is a proposed major road infrastructure project in the UK, designed to provide a new road crossing of the River Thames east of the existing Dartford Crossing. It aims to improve capacity, reduce congestion, and enhance connectivity between Kent and Essex.
Main Works Contractor(s)	The contractor appointed by the client to plan, manage, monitor, and coordinate the construction phase of a project involving multiple contractors. They are responsible for ensuring that construction work is carried out safely, efficiently, and in compliance with legal and regulatory requirements. This includes preparing the Construction Phase Plan, coordinating health and safety measures, and liaising with the Principal Designer and other stakeholders throughout the project.
Major Road Network (MRN)	Routes in the middle tier of the road network (between the SRN and LRN), as defined by the Department for Transport. MRNs are managed by the LHAs. For the Project, the LHAs are Thurrock Council and Essex, Suffolk and Norfolk County Councils.
Mitigation	The action of reducing the severity and magnitude of change (impact) to the environment. Measures to avoid, reduce, remedy or compensate for significant adverse effects.
Nationally Significant Infrastructure Project	Typically a large scale development of national importance that requires development consent from the Secretary of State, under the Planning Act 2008.
Overhead line	Conductor (wire) carrying electric current, strung from pylon to pylon.
Primary Access Routes (PARs)	Access routes on the public highway designated for use by construction vehicles (typically for HGVs) to travel from the strategic road network / major road network to the site access point.

Term	Description
Special Order (SO)	A category of abnormal load for those which are above 150,000kg in total weight, 6.1m in total width or 30m in rigid length.
STGO Cat (Category) 1/2/3	STGO refers to a Special Types General Order; a movement order under which abnormal loads can be transported subject to conditions which are split into 3 categories (STGO Cat 1/2/3) and are governed by vehicle and/or axle weight.
Strategic Road Network (SRN)	Comprises the motorway and trunk road network, managed by National Highways, as defined by the Department for Transport.
Swept path analysis	A digital simulation process used to assess whether a proposed or existing road layout can accommodate the movement of modelled vehicles.
Transformer	An electrical component used to transfer energy from one circuit to another, often used to step the voltage value up or down.
Transport Assessment	A TA is a comprehensive and systematic process that sets out transport issues relating to a proposed development. It identifies what measures will be taken to deal with the anticipated transport impacts of the scheme.
Underground cabling	An insulated conductor carrying electric current designed for underground installation. Underground cables link together two cable sealing end compounds.
VR1	A category of abnormal load for those which are 5m – 6.1m in total width.

Bibliography

Department for Energy Security and Net Zero (2024a) *Overarching National Policy Statement for Energy (EN-1)*

Driver and Vehicles Standards Agency (2018) *Special Types Enforcement Guide*

National Highways (2022) *Aide Memoire for Notification Requirements for the Movement of Abnormal Indivisible Loads*

National Highways (2019) *Water Preferred Policy: Guidelines for the Movement of Abnormal Indivisible Loads*

UK Statutory Instruments 2003 No. 1998 (2003) *Road Vehicles (Authorisation of Special Types) (General) Order 2003*

UK Statutory Instruments 1998 No. 3111 (1998) *Road Vehicles (Authorised Weight) Regulations 1998*

Annex A. National Highways Aide Memoire for Notification Requirements for the Movement of Abnormal Indivisible Loads

Annex A
National Highways Aide Memoire for Notification Requirements for the Movement of Abnormal Indivisible Loads

This section presents the Aide Memoire for Notification Requirements for the Movement of Abnormal Indivisible Loads (National Highways 2022).

Aide Memoire for notification requirements for the movement of Abnormal Indivisible Loads or vehicles by road when not complying with The Road Vehicles (Construction and Use) Regulations 1986 (commonly known as C & U)

Weight

Gross weight of vehicle carrying the load exceeding C & U limits up to and including 80,000kgs (78.74 tons)	2 clear working days' notice with indemnity to Road and Bridge Authorities.
Gross weight of vehicle carrying the load exceeding 80,000kgs up to and including 150,000kgs (147.63 tons)	2 clear working days' notice to Police and 5 clear days' notice with indemnity to Road and Bridge Authorities.
Gross weight of vehicle carrying the load exceeding 150,000kgs (147.63 tons)	National Highways Special Order* plus 5 clear working days' notice to Police and 5 clear days' notice with indemnity to Road and Bridge Authorities
Gross axle weight carrying the load exceeding 16,500kgs (16.24 tons)	National Highways Special Order* plus 5 clear working days' notice to Police and 5 clear days' notice with indemnity to Road and Bridge Authorities

Width

C & U loads:- width exceeding 2.9m (9ft 6ins) up to and including 4.3m (14ft 1 ins) STGO loads:- width exceeding 3.0m (9ft 10ins) up to and including 5.0m (16ft 5ins)	2 clear working days' notice to Police
Width exceeding 5.0m (16ft 5ins) up to and including 6.1m (20ft)	National Highways form VR1** plus 2 clear working days' notice to Police
Width exceeding 6.1m (20ft)	National Highways Special Order* plus 5 clear working days' notice to Police and 5 clear days' notice with indemnity to Road and Bridge Authorities

Length

C&U loads:- length exceeding 18.65m (61ft 2in) up to and including 27.4m (90ft) - See C&U Regulations 1986 for definition of length STGO loads:- length exceeding 18.75m (61ft 6 ins) - See part 2, article 12 of the Road Vehicles (Authorisation of Special Types) (General) Order 2003 (Commonly known as STGO) for definition of length	2 clear working days' notice to Police
Overall length of a part 2 vehicle-combination exceeding 25.9m (85ft) and up to and including 30m (98ft 43ins).	2 clear working days' notice to Police
Maximum length exceeding 30.0m (98ft 43ins) – see STGO Schedule 1, part 4, paragraph 25 for definition of maximum length NB For some very light loads, such as yacht masts, that are moved on conventional motor vehicles not exceeding 12,000kgs gross weight or trailers not exceeding 10,000kgs gross weight, a National Highways' Special Order* will be required if the rigid length exceeds 27.4m (89ft 11ins)	National Highways Special Order* plus 5 clear working days' notice to Police and 5 clear days' notice with indemnity to Road and Bridge Authorities.

Overhanging Loads

Front & Rear Overhanging Loads Projections exceeding 3.05 metres (10ft 01ins) rearwards and/or forwards	2 clear working days' notice to Police (C&U Schedule 12, paragraph 1), Attendant required (C&U Schedule 12, paragraph 2), Marker boards required (C&U Schedule 12, paragraph 3. https://www.gov.uk/government/publications/overhanging-loads-on-vehicles/overhanging-loads
Side Overhanging Loads Over 0.305 metres (1ft) lateral projection on either side	2 clear working days' notice to Police (C&U schedule 12, paragraph 4), Marker boards front and rear (C&U Schedule 12, paragraph 3), Additional lights required during hours of darkness or poor visibility. https://www.gov.uk/government/publications/overhanging-loads-on-vehicles/overhanging-loads

NOTE 1 “Clear days’ Notice” excludes Saturdays, Sundays or a public holiday in any part of Great Britain in relation to movements authorised by the Special Types General Order only, there being no such exclusion in Special Orders unless specifically stated.

NOTE 2 There is no statutory limit governing the overall height of a load, however, when applying for a Special Order or VR1 it should, wherever possible, not exceed 4.95m (16ft 3ins) in order that the maximum use can be made of the motorway and trunk road network.

NOTE 3 The notification requirements for mobile cranes can be found in the Road Vehicles (Authorisation of Special Types) (General) Order 2003, statutory instrument number 1998 (Part 2 Articles 10 to 18), which is available on the OPSI website: http://www.legislation.gov.uk/uksi/2003/1998/contents/made

NOTE 4 Application to move Special Types or Special Purpose vehicles, such as very large agricultural vehicles, that may not be fully permitted by the Construction & Use (C&U) Regulations or fall outside the scope of the Special Types General Order should be made to the Vehicle Certification Agency (VCA). Their website is at https://www.vehicle-certification-agency.gov.uk/

*A Special Order application can be completed and submitted online at https://nationalhighways.co.uk/road-safety/abnormal-loads-and-the-esdal-system/. The Special Order application form BE16 can also be downloaded and e-mailed to the address below. Approval is not automatic and is at the discretion of the National Highways Abnormal Loads Team acting on behalf of the Secretary of State for Transport. To ensure that the necessary clearances can be obtained in good time from the Police, Highway and Bridge Authorities, you should request permission for the move by returning the completed form 10 weeks prior to the scheduled date of the move. In fact you cannot apply too early and we invite manufacturers or hauliers to contact us at pre tender stage, before making a financial commitment to supply the load, to check whether permission would be granted.

** A VR1 application can be completed and submitted online at https://nationalhighways.co.uk/road-safety/abnormal-loads-and-the-esdal-system/. The form can also be downloaded and e-mailed to the address below. Approval is not automatic and is at the discretion of the National Highways Abnormal Loads Team acting on behalf of The Secretary of State for Transport. To ensure that the necessary formalities can be completed in good time, you should request permission for the move by submitting the completed form 2 weeks prior to the date of the scheduled move. Again, you cannot apply too early and we invite manufacturers or hauliers to contact us at pre-tender stage, before making a financial commitment to supply the load, to check whether permission would be granted.

Forms and enquiries to:
National Highways
Abnormal Loads Team
9th Floor, The Cube
199 Wharfside Street
Birmingham
B1 1RN

E-mail: abnormal.loads@nationalhighways.co.uk
Tel: 0300 470 3004

Annex B.
Structures Schedule

Annex B
Structures Schedule

This section presents a schedule of principal structures interacting with the proposed AIL routes following engagement with key stakeholders. Details of each structure are listed such as location and structure type. Interactions between AILs and structures will continue to be investigated beyond the DCO submission and will be developed further by the Main Works Contractor.

Structures Schedule

Structures intersecting with AIL routes

ID	Location	Easting (X)	Northing (Y)	What 3 Words	Type	Vehicle	Asset Owner
1	Noak Hill Road, Basildon	568381	191080	///hips.forget.scars	River crossing (vehicle passes over)	Crane	Essex County Council
2	Old Chuch Lane, Brentwood	564296	196545	///fled.wisely.recall	Culvert (vehicle passes over)	Crane	Essex County Council
3	Roman Road, Brentwood	562418	196984	///covers.tooth.eating	River crossing (vehicle passes over)	Crane	Essex County Council
4	Church Road, Brentwood	563344	197517	///beams.herds.learn	Rail crossing (vehicle passes over)	Crane	Network Rail
5	Church Road, Brentwood	563289	197544	///bleat.league.rail	Road bridge (Crane passes over, Cable Drum passes under)	Crane + Cable Drum	National Highways
6	Private road off B1002, Ingatestone	566096	200153	///rocks.gravy.year	Rail crossing (vehicle passes over)	Crane	Private
7	Wantz Road, Margaretting, Ingatestone	566839	202073	///discouraged.votes.warns	Road bridge (Crane passes over, Cable Drum passes under)	Crane + Cable Drum	National Highways
8	Greenbury Way, Chelmsford	568881	205156	///rate.quick.deed	River crossing (vehicle passes over)	Crane	Essex County Council
9	Waterhouse Lane, Chelmsford	569823	206789	///valid.lasts.holds	River crossing (vehicle passes over)	Crane	Essex County Council
10	Roxwell Road, Chelmsford	568690	207507	///lunch.verse.flips	River crossing (vehicle passes over)	Crane	Essex County Council
11	Roxwell Road, Writtle, Chelmsford	567539	207571	///functions.inkjet.start	River crossing (vehicle passes over)	Crane	Essex County Council
12	Vicarage Road, Chelmsford	565955	208202	///kitchen.instincts.crowns	River crossing (vehicle passes over)	Crane	Essex County Council
13	B1389, Whitham	580645	212749	///planet.jars.frock	Road bridge (vehicle passes over)	Crane	National Highways
14	Blasford Hill, Little Waltham, Chelmsford	570590	212979	///pits.funny.entertainer	River crossing (vehicle passes over)	Crane	Essex County Council
15	Highfields Road, Witham	581437	214565	///feuds.excusing.unions	Rail crossing (vehicle passes under)	Crane	Network Rail
16	A131, Chelmsford	572443	216596	///opens.contact.squirted	River crossing (vehicle passes over)	Crane + Cable Drum	Essex County Council
17	A131, Chelmsford	572452	216849	///otter.labs.tortoises	Road bridge (vehicle passes under)	Crane + Cable Drum	Essex County Council
18	A131, Chelmsford	572613	217415	///crawling.abundance.prowling	Road bridge (vehicle passes under)	Crane + Cable Drum	Essex County Council
19	A131, Chelmsford	572796	217690	///class.skewing.locator	Road bridge (vehicle passes under)	Crane + Cable Drum	Essex County Council
20	A131, Chelmsford	573806	219621	///final.sleepers.uniforms	Road bridge (vehicle passes over)	Crane + Cable Drum	Essex County Council
21	Halstead Road, Colchester	594650	225301	///postings.success.natively	Rail crossing (vehicle passes over)	Crane	Essex County Council
22	Fiddlers Hill, Colchester	592903	227111	///midwinter.maker.cubes	River crossing (vehicle passes over)	Crane	Essex County Council
23	Nayland Road, Colchester	598513	228729	///spurted.inhales.heave	Road bridge (Crane passes under, Cable Drum passes over)	Crane + Cable Drum	National Highways
24	Wick Lane, Ardleigh, Colchester	604108	229420	///cafe.messy.success	River crossing (vehicle passes over)	Crane	Private
25	Road off Ipswich Road, Ardleigh, Colchester	602446	229712	///achieving.either.goose	Road bridge (Crane passes under, Cable Drum + Transformer pass over)	Crane + Cable Drum + Transformer	National Highways
26	Birchwood Road, Colchester	603339	231543	///perfume.handrail.salt	Road bridge (Crane passes under, Cable Drum + Transformer pass over)	Crane + Cable Drum + Transformer	National Highways
27	Ipswich Road, Dedham, Colchester	603686	232458	///fronted.wove.lively	Road bridge (Crane passes under, Cable Drum + Transformer pass over)	Crane + Cable Drum + Transformer	National Highways
28	Thorpe's Hill, Ipswich	610346	243533	///mixture.manuals.laminate	River crossing (vehicle passes over)	Crane	Suffolk County Council
29	A1071, Ipswich	612514	243583	///bunk.arrive.slides	Road bridge (vehicle passes over)	Crane + Transformer	National Highways
30	Bramford Road, Great Blakenham, Ipswich	612422	249532	///organ.wires.complains	Rail crossing (vehicle passes over)	Crane	Suffolk County Council
31	Bramford Road, Great Blakenham, Ipswich	612674	249563	///trader.shiny.holly	River crossing (vehicle passes over)	Crane	Suffolk County Council
32	A1120, Stowmarket	606230	257690	///deposits.summaries.spins	Rail crossing (vehicle passes over)	Crane	Suffolk County Council
33	A1120, Stowmarket	606678	258289	///cropping.airstrip.riders	Road bridge (vehicle passes under)	Crane	Suffolk County Council
34	Wickham Road, Stowmarket	607094	269309	///circus.rejoiced.shepherdess	Rail crossing (vehicle passes under)	Crane	Network Rail
35	Eastlands Lane, Stowmarket	607579	269487	///lecturers.rosette.happening	River crossing (vehicle passes over)	Crane	Private
36	Thornham Road, Eye	608402	271726	///reservoir.messing.tutorial	Rail crossing (vehicle passes under)	Crane	Network Rail
37	A143, Diss	610446	277238	///sang.diplomas.puppy	Road bridge (vehicle passes under)	Crane	Suffolk County Council
38	A143, Diss	611782	277747	///stand.boating.hardback	Rail crossing (vehicle passes over)	Crane	Suffolk County Council
39	A1066, Diss	613251	279087	///abode.radiated.lends	River crossing (vehicle passes over)	Crane	Norfolk County Council
40	Victoria Road, Diss	612547	279300	///blazers.baker.woes	Rail crossing (vehicle passes under)	Crane	Network Rail
41	A1066, Thetford	588010	283037	///limelight.able.lives	River crossing (vehicle passes over)	Crane	Norfolk County Council
42	Mundford Road, Thetford Road	587207	283707	///heads.exclaim.shrug	Rail crossing (vehicle passes over)	Crane	Norfolk County Council
43	B1135, Wymondham	613040	300858	///parkland.flashback.proposals	Culvert (vehicle passes over)	Crane	Norfolk County Council
44	B1135, Wymondham,	614046	300419	///gagging.myths.bills	Culvert (vehicle passes over)	Crane	Norfolk County Council
45	B1113, Norwich	616523	298098	///tiger.bulb.obstruct	Culvert (vehicle passes over)	Crane	Norfolk County Council
46	B1134, Norwich	616323	288109	///protrude.vital.actual	Culvert (vehicle passes over)	Crane	Norfolk County Council

ID	Location	Easting (X)	Northing (Y)	What 3 Words	Type	Vehicle	Asset Owner
47	B1134, Sneath Common, Norwich	615842	287974	///protrude.vital.actual	Rail level crossing (vehicle passes through)	Crane	Network Rail
48	B1134, Norwich	614721	287754	///enlighten.prestige.smaller	Culvert (vehicle passes over)	Crane	Norfolk County Council
49	A1066, South Lopham, Diss	604679	281381	///tidying.copes.array	Culvert (vehicle passes over)	Crane	Norfolk County Council
50	A143, Diss	611081	277439	///mailboxes.training.decking	Culvert (vehicle passes over)	Crane	Suffolk County Council
51	Walsham Road, Finningham	606558	269516	///rates.wobbles.chair	River crossing (vehicle passes over)	Crane	Suffolk County Council
52	Loraine Way, Ipswich	611895	247621	///prop.swung.escape	Culvert (vehicle passes over)	Crane	Suffolk County Council
53	A1071, Ipswich	610743	243851	///universal.husky.explained	Culvert (vehicle passes over)	Crane	Suffolk County Council
54	Ipswich Road, Dedham, Colchester	603629	232658	///wanting.beginning.evoked	Culvert (vehicle passes over)	Crane + Cable Drum	Essex County Council
55	Old Ipswich Road, Colchester	602122	228952	///between.pupils.corded	River crossing (vehicle passes over)	Crane	Private
56	A134, Colchester	598374	228928	///repayment.class.drop	Culvert (vehicle passes over)	Crane + Cable Drum	Essex County Council
57	London Road, Chelmsford	569170	204551	///taped.orchestra.wins	River crossing (vehicle passes over)	Crane	Essex County Council
58	Ivy Barns Lane, Ingatestone	566436	202063	///lions.admiral.bliss	Culvert (vehicle passes over)	Crane	Essex County Council
59	B1002, Ingatestone	566641	201498	///reveal.object.album	River crossing (vehicle passes over)	Crane	Essex County Council
60	A1089, Grays	563520	178354	///farmer.universally.codes	Road bridge (vehicle passes under)	Cable Drum + Transformer	National Highways
61	A1089, Grays	563774	178637	///glass.finely.codes	Road bridge (vehicle passes under)	Cable Drum + Transformer	National Highways
62	A1089, Grays	563901	179146	///flood.stage.gladiators	Road bridge (vehicle passes under)	Cable Drum + Transformer	National Highways
63	A1089, Grays	563664	180249	///edit.rail.smiles	Road bridge (vehicle passes under)	Cable Drum + Transformer	National Highways
64	A1089, Grays	563612	180652	///complains.doors.effort	Road bridge (vehicle passes over)	Crane + Cable Drum + Transformer	National Highways
65	A13, Orsett	563563	180820	///skins.fall.quarrel	Road bridge (vehicle passes over)	Cable Drum + Transformer	National Highways
66	A13, Orsett	563394	180837	///nature.jeeps.rise	Road bridge (vehicle passes under + over)	Cable Drum + Transformer	National Highways
67	A13, Orsett	564818	181102	///organs.stacks.areas	Road bridge (vehicle passes under)	Cable Drum + Transformer	National Highways
68	Orsett Cock, Orsett	565239	181277	///flat.chef.insist	Road bridge (Cable Drum + Transformer pass over, Cable Drum also passes under)	Cable Drum + Transformer	National Highways
69	Orsett Cock, Orsett	565347	181322	///tooth.blunt.grew	Road bridge (Cable Drum + Transformer pass over, Cable Drum also passes under)	Cable Drum + Transformer	National Highways
70	A13, Stanford-Le-Hope	566843	181894	///update.spicy.really	Road bridge (vehicle passes under)	Cable Drum + Transformer	National Highways
71	A13, Stanford-Le-Hope	567560	182189	///belly.linked.loss	Road bridge (vehicle passes under)	Cable Drum + Transformer	National Highways
72	A1013, Standford-Le-Hope	568010	182894	///daily.goods.nurses	Road bridge (vehicle passes over)	Cable Drum + Transformer	National Highways
73	A1014, Stanford-Le-Hope	568159	182917	///hulk.defend.hits	Rail crossing (vehicle passes over)	Cable Drum + Transformer	Thurrock Council
74	A12, Brentwood	559086	195088	///skins.tests.glad	Road bridge (vehicle passes over)	Cable Drum	National Highways
75	A12, Brentwood	560943	196075	///dose.deputy.chef	Road bridge (vehicle passes under)	Cable Drum	National Highways
76	A12, Brentwood	562230	196727	///snail.curving.curry	Road bridge (vehicle passes under)	Cable Drum	National Highways
77	A12, Brentwood	562314	196740	///swear.risky.tiger	Road bridge (vehicle passes under)	Cable Drum	National Highways
78	A12, Brentwood	562649	196820	///calculating.dust.bossy	Road bridge (vehicle passes over)	Cable Drum	National Highways
79	A12, Brentwood	563290	197542	///cups.faded.swing	Road bridge (Crane passes over, Cable Drum passes under)	Crane + Cable Drum	National Highways
80	A12, Brentwood	563795	198501	///feast.search.brush	River crossing (vehicle passes over)	Cable Drum	National Highways
81	A12, Ingatestone	563940	198787	///beyond.sock.sounds	Road bridge (vehicle passes under)	Cable Drum	National Highways
82	A12, Ingatestone	564586	199849	///flag.weedy.hops	Road bridge (vehicle passes under)	Cable Drum	National Highways
83	A12, Chelmsford	570505	201578	///slept.fight.complain	Road bridge (vehicle passes under)	Cable Drum	National Highways
84	A12, Chelmsford	571097	201695	///explores.comic.nips	Road bridge (vehicle passes under)	Cable Drum	National Highways
85	A12, Margaretting	566539	201832	///minds.record.chose	Road bridge (vehicle passes over)	Cable Drum	National Highways
86	A12, Margaretting	566839	202070	///discouraged.votes.warns	Road bridge (Crane passes over, Cable Drum passes under)	Crane + Cable Drum	National Highways
87	A12, Chelmsford	569406	202236	///useful.disprove.repaid	Road bridge (vehicle passes under)	Cable Drum	National Highways
88	A12, Margaretting	567697	202321	///geologist.height.resting	Road bridge (vehicle passes over)	Cable Drum	National Highways
89	A12, Chelmsford	569080	202410	///trip.shipwreck.richer	River crossing (vehicle passes over)	Cable Drum	National Highways
90	A12, Chelmsford	568393	202537	///palaces.rephrase.intrigued	Rail crossing (vehicle passes over)	Cable Drum	National Highways
91	A131, Chelmsford	571508	213281	///gravy.prices.cemented	Road bridge (vehicle passes over)	Cable Drum	National Highways
92	A131, Great Leighs	572443	216596	///cherish.slams.clutches	River crossing (vehicle passes over)	Crane + Cable Drum	National Highways
93	A131, Great Leighs	572452	216849	///bagpipes.double.confident	Road bridge (vehicle passes under)	Crane + Cable Drum	National Highways
94	A131, Great Leighs	572613	217415	///crawling.abundance.prowling	Road bridge (vehicle passes under)	Crane + Cable Drum	Essex County Council
95	A131, Great Leighs	572796	217690	///enjoyable.remove.imprinted	Road bridge (vehicle passes under)	Crane + Cable Drum	National Highways
96	A131, Braintree	573806	219621	///stupidly.tribune.petrified	Road bridge (vehicle passes over)	Crane + Cable Drum	National Highways

ID	Location	Easting (X)	Northing (Y)	What 3 Words	Type	Vehicle	Asset Owner
97	A120, Braintree	575887	221397	///sardine.nags.diverting	Road bridge (vehicle passes under)	Cable Drum	National Highways
98	A120, Braintree	575435	221593	///riots.joked.mural	Road bridge (vehicle passes under)	Cable Drum	National Highways
99	A120, Braintree	576976	221733	///monks.porridge.career	Rail crossing (vehicle passes under)	Cable Drum	Network Rail
100	A120, Braintree	577489	221899	///than.weep.toasters	Road bridge (vehicle passes under)	Cable Drum	National Highways
101	A120, Colchester	591178	223638	///websites.smiled.heartache	Rail crossing (vehicle passes over)	Cable Drum	National Highways
102	A12, Colchester	592539	224251	///gossiped.footsteps.compliant	River crossing (vehicle passes over)	Cable Drum	National Highways
103	A12, Colchester	593309	224619	///tablets.suits.recruited	Road bridge (vehicle passes over)	Cable Drum	National Highways
104	A120, Colchester	608716	225080	///outlines.steam.dribble	Road bridge (vehicle passes under)	Cable Drum	National Highways
105	A12, Colchester	594654	225098	///resolved.prefer.sprinter	Road bridge (vehicle passes under)	Cable Drum	National Highways
106	A120, Colchester	609729	225104	///heavy.remarried.withdraw	Road bridge (vehicle passes under)	Cable Drum	National Highways
107	A12, Colchester	594731	225105	///decks.suspends.measuring	Road bridge (vehicle passes under)	Cable Drum	National Highways
108	A12, Colchester	608182	225163	///impresses.stupidly.artichoke	Road bridge (vehicle passes under)	Cable Drum + Transformer	National Highways
109	A12, Colchester	595694	225245	///spite.yours.mass	Road bridge (vehicle passes under)	Cable Drum	National Highways
110	A12, Colchester	595905	225279	///cowboy.apply.monday	Road bridge (vehicle passes under)	Cable Drum	National Highways
111	A120, Colchester	607337	225735	///transit.longingly.nature	Road bridge (vehicle passes under)	Cable Drum + Transformer	National Highways
112	A12, Colchester	597026	226139	///shock.chemistry.taps	River crossing (vehicle passes over)	Cable Drum	National Highways
113	A120, Colchester	606257	226320	///safari.routine.unrated	Road bridge (vehicle passes under)	Cable Drum + Transformer	National Highways
114	A12, Colchester	597196	226415	///spring.lovely.torn	Rail crossing (vehicle passes over)	Cable Drum	National Highways
115	A120, Colchester	604588	227018	///bravo.dignify.interacts	Road bridge (vehicle passes under)	Cable Drum + Transformer	National Highways
116	A12, Colchester	597393	227243	///spill.songs.motel	Road bridge (vehicle passes under)	Cable Drum	National Highways
117	A120, Colchester	604136	227396	///cork.sailed.puddles	Road bridge (vehicle passes under)	Cable Drum + Transformer	National Highways
118	A120, Colchester	603440	227716	///sports.latter.rivers	Rail crossing (vehicle passes under)	Cable Drum + Transformer	National Highways
119	A120, Colchester	603171	227880	///sage.shout.belong	Road bridge (vehicle passes under)	Cable Drum + Transformer	National Highways
120	A120, Colchester	602743	228221	///gallons.sleeps.locate	Road bridge (vehicle passes under)	Cable Drum + Transformer	National Highways
121	A12, Colchester	598513	228729	///spurted.inhales.heave	Road bridge (Crane passes under, Cable Drum passes over)	Crane + Cable Drum	National Highways
122	A120, Colchester	601944	228847	///dates.splints.heartburn	Road bridge (Transformer + Cable Drum pass over, Cable Drum also passes under)	Cable Drum + Transformer	National Highways
123	A120, Colchester	601850	228884	///leathers.stunts.implanted	Road bridge (Transformer + Cable Drum pass over, Cable Drum also passes under)	Cable Drum + Transformer	National Highways
124	A12, Colchester	599062	228990	///full.stolen.entrusted	Road bridge (vehicle passes under)	Cable Drum	National Highways
125	A12, Colchester	599541	229125	///robes.jots.fatter	Road bridge (vehicle passes under + over)	Cable Drum	National Highways
126	A12, Colchester	601585	229159	///loafing.battling.enlighten	Road bridge (vehicle passes under)	Cable Drum	National Highways
127	A12, Colchester	601974	229213	///skippers.different.rewriting	Road bridge (vehicle passes under + over)	Cable Drum	National Highways
128	A12, Colchester	600647	229244	///souk.living.polar	Road bridge (vehicle passes under)	Cable Drum	National Highways
129	A12, Colchester	602447	229714	///lemons.whisker.budding	Road bridge (Crane passes under, Cable Drum + Transformer pass over)	Crane + Cable Drum + Transformer	National Highways
130	Ipswich Road, Colchester	603337	231544	///perfume.handrail.salt	Road bridge (Crane passes under, Cable Drum + Transformer pass over)	Crane + Cable Drum + Transformer	National Highways
131	A12, Dedham, Colchester	603686	232457	///eternally.plugged.epic	Road bridge (Crane passes under, Cable Drum + Transformer pass over)	Crane + Cable Drum + Transformer	National Highways
132	A12, Dedham, Colchester	604024	232870	///rarely.cabinets.employers	Road bridge (vehicle passes under)	Cable Drum + Transformer	National Highways
133	A12, Dedham, Colchester	604268	233255	///rashers.elections.recital	Road bridge (vehicle passes under)	Cable Drum + Transformer	National Highways
134	A12, Dedham, Colchester	604294	233481	///fewer.sweated.cricket	River crossing (vehicle passes over)	Cable Drum + Transformer	National Highways
135	A12, East Bergholt, Colchester	606599	236314	///reclaim.snooping.rested	Road bridge (Cable Drum + Transformer pass over, Cable Drum also passes under)	Cable Drum + Transformer	National Highways
136	A12, Ipswich	607934	236892	///upsetting.circulate.lifted	River crossing (vehicle passes over)	Cable Drum + Transformer	National Highways
137	A12, Ipswich	610043	238426	///scorch.tastes.reseller	Road bridge (vehicle passes over)	Cable Drum + Transformer	National Highways
138	A12, Ipswich	610764	239589	///goodbye.contained.only	Road bridge (vehicle passes over)	Cable Drum + Transformer	National Highways
139	A14, Ipswich	614802	241007	///jetliner.clay.snowballs	Rail crossing (vehicle passes under)	Cable Drum + Transformer	Network Rail
140	A14, Ipswich	614574	241120	///indirect.types.skim	Road bridge (vehicle passes under)	Cable Drum + Transformer	National Highways
141	A12, Ipswich	612334	241205	///beefed.spine.cringes	Road bridge (vehicle passes under)	Cable Drum + Transformer	National Highways
142	A14, Ipswich	613725	241636	///dared.bravo.hotspots	Road bridge (vehicle passes over)	Cable Drum + Transformer	National Highways
143	A14, Ipswich	612675	241994	///paint.etchings.coverage	Road bridge (vehicle passes over)	Cable Drum + Transformer	National Highways
144	A14, Ipswich	612580	242108	///hush.goat.departure	Road bridge (vehicle passes over)	Cable Drum + Transformer	National Highways
145	A1071, Ipswich	612515	243581	///police.visa.roof	Road bridge (vehicle passes over)	Crane + Transformer	National Highways
146	A14, Ipswich	620167	241180	///system.perfumes.scooters	Road bridge (vehicle passes under + over)	Cable Drum + Transformer	National Highways

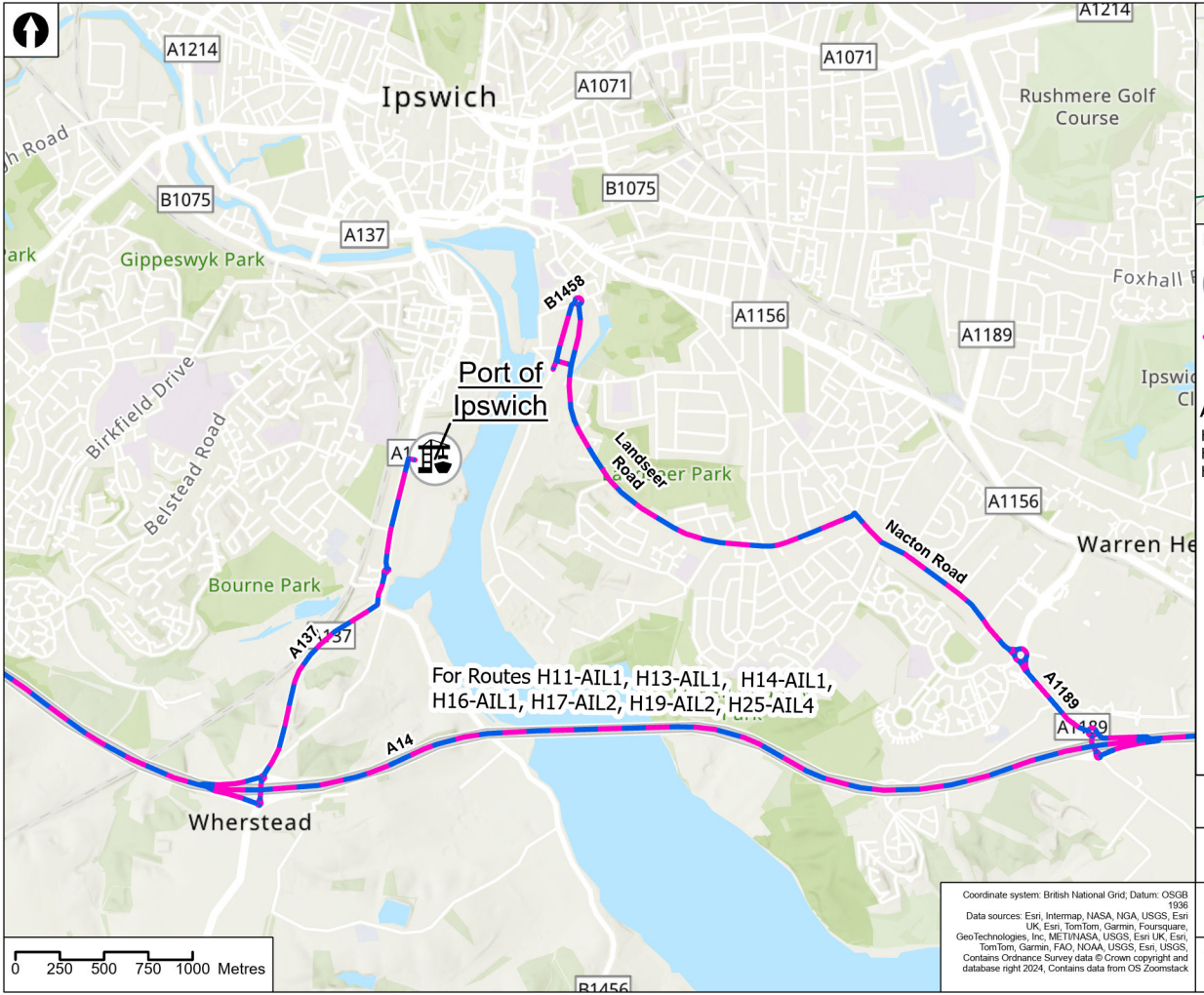
ID	Location	Easting (X)	Northing (Y)	What 3 Words	Type	Vehicle	Asset Owner
147	A14, Ipswich	623307	241443	///musically.headlines.workers	Road bridge (vehicle passes under)	Cable Drum + Transformer	National Highways
148	A14, Ipswich	623431	241351	///measuring.pats.touchy	Road bridge (vehicle passes under)	Cable Drum + Transformer	National Highways
149	A14, Ipswich	615469	240868	///earlobe.sonic.pixies	Road bridge (vehicle passes under + over)	Cable Drum + Transformer	National Highways
150	A137, Ipswich	616123	241965	///electrode.runways.pops	River crossing (vehicle passes over)	Cable Drum + Transformer	Suffolk County Council
151	A14, Ipswich	622271	241364	///dorm.unsettled.shared	Road bridge (vehicle passes under)	Cable Drum + Transformer	National Highways
152	A14, Ipswich	618993	240915	///diamond.manicured.cafe	Road bridge (vehicle passes under)	Cable Drum + Transformer	National Highways
153	A14, Ipswich	618171	241210	///cutaway.splashes.cloak	Culvert (vehicle passes over)	Cable Drum + Transformer	National Highways
154	A14, Ipswich	617307	241236	///sitting.enter.occupiers	River crossing (vehicle passes over)	Cable Drum + Transformer	National Highways
155	A14, Ipswich	614342	241273	///slanting.cowboy.looms	Culvert (vehicle passes over)	Cable Drum + Transformer	National Highways
156	A14, Ipswich	612915	241835	///expanded.altering.vaulting	Culvert (vehicle passes over)	Cable Drum + Transformer	National Highways
157	A14, Ipswich	612900	241793	///stocky.thrusters.alpha	Culvert (vehicle passes over)	Cable Drum + Transformer	National Highways
158	A12, Colchester	603820	232621	///community.warping.autumn	Road bridge (vehicle passes over)	Cable Drum + Transformer	National Highways
159	A12, Colchester	601698	229158	///madness.wires.ourselves	Culvert (vehicle passes over)	Cable Drum	National Highways
160	A12, Colchester	596574	225750	///tribe.bricks.lace	Road bridge (vehicle passes over)	Cable Drum	National Highways
161	A120, Braintree	580685	223126	///cherry.leads.woven	River crossing (vehicle passes over)	Cable Drum	National Highways
162	Ipswich Road, Colchester	603629	232650	///frightens.javelin.deaf	Culvert (vehicle passes over)	Crane + Cable Drum	Essex County Council
163	A134, Colchester	598374	228928	///resembles.gilding.material	Culvert (vehicle passes over)	Crane + Cable Drum	Essex County Council
164	A131, Chelmsford	574152	209687	///cattle.mimic.cook	Rail crossing (vehicle passes over)	Cable Drum	Unknown
165	Generals Lane Roundabout, Chelmsford	574135	209415	///penny.colleague.thank	Road bridge (vehicle passes over)	Cable Drum	National Highways
166	A12, Chelmsford	574373	206593	///force.cities.unwanted	River crossing (vehicle passes over)	Cable Drum	National Highways
167	A12, Chelmsford	574766	205432	///homes.bars.visit	Road bridge (vehicle passes under)	Cable Drum	National Highways
168	A12, Chelmsford	574767	204857	///edge.sake.jelly	Road bridge (vehicle passes under)	Cable Drum	National Highways
169	A12, Chelmsford	574396	204045	///wiping.pill.booklets	Road bridge (vehicle passes under)	Cable Drum	National Highways
170	A12, Chelmsford	573339	202807	///discusses.agreeable.trains	Road bridge (vehicle passes under)	Cable Drum	National Highways
171	A12, Chelmsford	572776	202466	///founders.expensive.tapes	Road bridge (vehicle passes under)	Cable Drum	National Highways
172	A12, Margaretting, Chelmsford	566315	201475	///hears.police.fancy	River crossing (vehicle passes over)	Cable Drum	National Highways
173	A12, Brentwood	558668	194844	///hidden.that.latter	Road bridge (vehicle passes under)	Cable Drum	National Highways
174	A12, Brentwood	558295	194027	///flag.powder.dawn	Road bridge (vehicle passes under)	Cable Drum	National Highways
175	A12, Brentwood	557327	192927	///under.glare.rider	Road bridge (vehicle passes under)	Cable Drum	National Highways
176	A12, Brentwood	556702	192466	///longer.taped.cook	Road bridge (vehicle passes under)	Cable Drum	National Highways
177	A12, Brentwood	556707	192339	///begun.kings.mason	Road bridge (vehicle passes over)	Cable Drum	National Highways
178	A12, Brentwood	556851	192304	///cans.mats.riders	Road bridge (vehicle passes under)	Cable Drum	National Highways
179	M25, Warley, Brentwood	557120	191810	///ground.soccer.vivid	Road bridge (vehicle passes under)	Cable Drum	National Highways
180	M25, Upminster, Brentwood	557362	190374	///year.bank.ranged	Road bridge (vehicle passes under)	Cable Drum	National Highways
181	M25, Upminster, Brentwood	557774	189672	///driver.acted.thin	Road bridge (vehicle passes under)	Cable Drum	National Highways
182	M25, Upminster, Brentwood	558417	188542	///repair.vocab.files	Road bridge (vehicle passes over)	Cable Drum	National Highways
183	M25, Upminster, Brentwood	558465	188430	///stack.field.spins	Road bridge (vehicle passes over)	Cable Drum	National Highways
184	M25, Upminster, Brentwood	558507	188331	///eagle.evenly.nights	Road bridge (vehicle passes over)	Cable Drum	National Highways
185	M25, Upminster	558772	187594	///lately.vocab.bulb	Rail crossing (vehicle passes over)	Cable Drum	National Highways
186	M25, Upminster	558859	187006	///manliness.serve.robot	Road bridge (vehicle passes over)	Cable Drum	National Highways
187	M25, Upminster	558792	186573	///glee.quit.crunch	Culvert (vehicle passes over)	Cable Drum	National Highways
188	M25, Upminster	558366	185100	///windy.will.chops	Road bridge (vehicle passes under)	Cable Drum	National Highways
189	M25, Upminster	558304	184574	///award.feels.sage	Rail crossing (vehicle passes over)	Cable Drum	National Highways
190	M25, South Ockendon	558209	184104	///repay.mull.effort	Road bridge (vehicle passes over)	Cable Drum	National Highways
191	M25, Aveley, South Ockendon	557526	180458	///nests.marked.kite	Road bridge (vehicle passes under)	Cable Drum	National Highways
192	Mardyke Junction, Grays	557585	179944	///wages.danger.school	Road bridge (vehicle passes over)	Cable Drum	National Highways
193	Mardyke Junction, Grays	557447	180026	///vague.salads.spared	Road bridge (vehicle passes under)	Cable Drum	National Highways
194	Mardyke Junction, Grays	557555	180202	///dimes.voted.cling	Road bridge (vehicle passes over)	Cable Drum	National Highways
195	A13, Grays, South Ockendon	558043	180038	///invest.shades.gangs	River crossing (vehicle passes over)	Cable Drum	National Highways
196	A13, Grays, South Ockendon	558976	179815	///tribal.lasted.shirt	Road bridge (vehicle passes under)	Cable Drum	National Highways

ID	Location	Easting (X)	Northing (Y)	What 3 Words	Type	Vehicle	Asset Owner
197	A13, Grays, South Ockendon	559058	179809	///force.moves.rides	Rail crossing (vehicle passes under)	Cable Drum	Network Rail
198	A13, Chafford Hundred, Grays	559458	179791	///beam.master.super	Road bridge (vehicle passes under)	Cable Drum	National Highways
199	A13, Chafford Hundred, Grays	560061	179841	///radio.wounds.script	Road bridge (vehicle passes under)	Cable Drum	National Highways
200	A13, Grays	560711	180236	///straw.shrimp.frames	Road bridge (vehicle passes under)	Cable Drum	National Highways
201	A13, Grays	560799	180349	///token.filled.rapid	Road bridge (vehicle passes under)	Cable Drum	National Highways
202	A13, Grays	561801	181028	///dates.shall.wake	Road bridge (vehicle passes over)	Cable Drum	National Highways
203	A1089, Grays	563177	177777	///verse.chest.dance	River crossing (vehicle passes over)	Cable Drum + Transformer	National Highways
204	A1089, Tilbury	563172	176704	///print.with.pits	Rail crossing (vehicle passes over)	Cable Drum + Transformer	National Highways
205	A1014 The Manorway, Stanford-Le-Hope	568599	182880	///slot.shakes.give	Road bridge (vehicle passes over)	Cable Drum + Transformer	Thurrock Council
206	Parkeston Bypass, Harwich	624105	232125	///taxed.flown.boring	River crossing (vehicle passes over)	Cable Drum + Transformer	Essex County Council
207	A120, Harwich	624536	231878	///hires.impose.falls	Rail crossing (vehicle passes over)	Cable Drum + Transformer	Essex County Council
208	A120, Harwich	623980	231783	///people.stockpile.fidelity	Culvert (vehicle passes over)	Cable Drum + Transformer	Essex County Council
209	A120, Harwich	623814	231679	///cheeks.hires.chapels	Culvert (vehicle passes over)	Cable Drum + Transformer	National Highways
210	A120, Harwich	621894	231059	///variances.palettes.snatched	River crossing (vehicle passes over)	Cable Drum + Transformer	National Highways
211	A120, Harwich	621192	230258	///blip.maps.obtain	River crossing (vehicle passes over)	Cable Drum + Transformer	National Highways
212	A120, Wix	616280	228585	///outsmart.envisage.strictly	Road bridge (vehicle passes over)	Cable Drum + Transformer	National Highways
213	M25, Upminster, Brentwood	556996	192068	///scans.certified.broad	Rail crossing (vehicle passes under)	Cable Drum + Transformer	Network Rail
214	Bramford Road, Ipswich	612422	249532	///fills.hood.fleet	Rail crossing (vehicle passes over)	Transformer	Suffolk County Council
215	Bramford Road, Ipswich	612674	249563	///tribes.logo.after	River crossing (vehicle passes over)	Transformer	Suffolk County Council
216	B1113 Stowmarket Road	607506	256304	///fronted.enlighten.items	Culvert (vehicle passes over)	Crane	Suffolk County Council
217	A143 Old Bury Road, Palgrave	609988	277202	///scariest.alright.tides	Culvert (vehicle passes over)	Crane	Suffolk County Council
218	A1071, Ipswich	619227	245072	///tennis.vote.rams	Culvert (vehicle passes over)	Crane + Transformer	Suffolk County Council
219	Mill Lane. Needham Market	607782	257469	///reservoir.seasick.calculate	Culvert (vehicle passes over)	Crane	Suffolk County Council
220	B1113 Walsham Road, Finningham	605739	270640	///redeeming.hobble.myself	Culvert (vehicle passes over)	Crane	Suffolk County Council
221	Lion Road, Palgrave	609498	277403	///internet.blur.failed	Culvert (vehicle passes over)	Crane	Suffolk County Council
222	A1120 Mill Hill, Earl Soham	622937	263105	///mingles.design.crisps	Culvert (vehicle passes over)	Crane	Suffolk County Council
223	A143 Old Bury Road, Palgrave	611931	277816	///concerned.milky.verve	Culvert (vehicle passes over)	Crane	Suffolk County Council
224	A143 Old Bury Road, Palgrave	612345	278119	///affair.microchip.lasts	Culvert (vehicle passes over)	Crane	Suffolk County Council
225	Mountnessing Road, Billericay	566212	195658	///zest.salad.types	Culvert (vehicle passes over)	Crane	Essex County Council
226	Mountnessing Road, Billericay	565746	196291	///back.issues.locker	River crossing (vehicle passes over)	Crane	Essex County Council
227	Mountnessing Road, Billericay	566823	195126	///animal.trains.mops	Rail crossing (vehicle passes over)	Crane	Network Rail
228	A12 Ipswich Road	605078	234639	///blank.importers.bookcases	Road bridge (vehicle passes over)	Cable Drum + Transformer	National Highways

Annex C. Inset Maps for Transformer and Cable Drum AIL Routes Taken Forward

Annex C
Inset Maps for Transformer and Cable Drum AIL Routes Taken Forward

This section contains inset maps of the port areas at the start of the proposed Transformer and Cable Drum AIL routes. The maps complement the individual route maps presented throughout Section 4.2.



Legend

Port

Transformer AIL and Cable Drum AIL

AIL route reference:

H11-AIL1, H13-AIL1, H14-AIL1, H16-AIL1, H17-AIL2, H19-AIL2, H25-AIL4

Delivery Vehicle

Cable Drum AIL

Transformer AIL (AIL-AL50 Girder Delivery Vehicle)

Drawing Title

Suffolk Inset Map 1

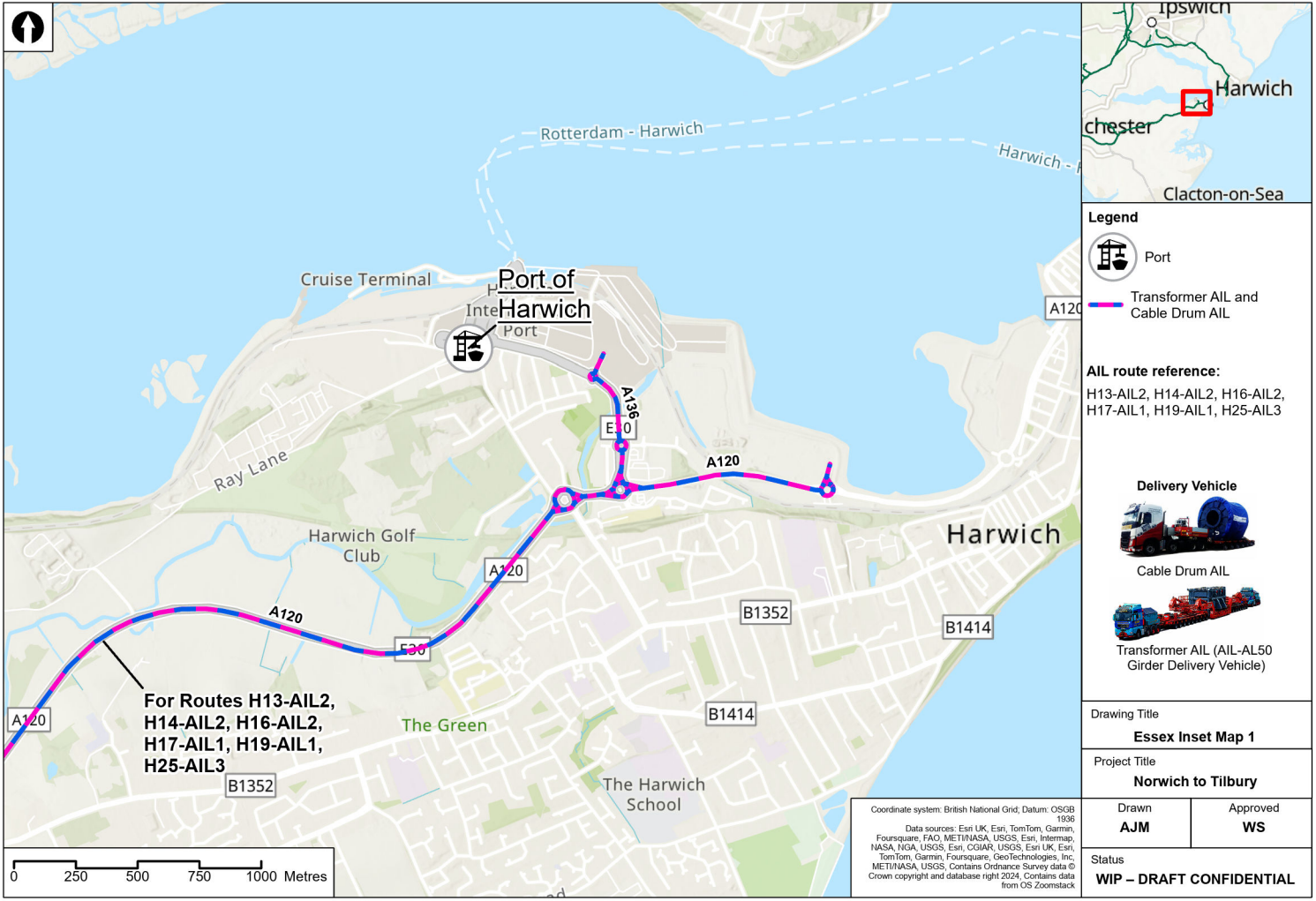
Project Title

Norwich to Tilbury

Drawn	Approved
AJM	**WS**

Status

WIP – DRAFT CONFIDENTIAL



Legend

Port

Transformer AIL and Cable Drum AIL

AIL route reference:

H13-AIL2, H14-AIL2, H16-AIL2, H17-AIL1, H19-AIL1, H25-AIL3

Delivery Vehicle

Cable Drum AIL

Transformer AIL (AIL-AL50 Girder Delivery Vehicle)

Drawing Title

Essex Inset Map 1

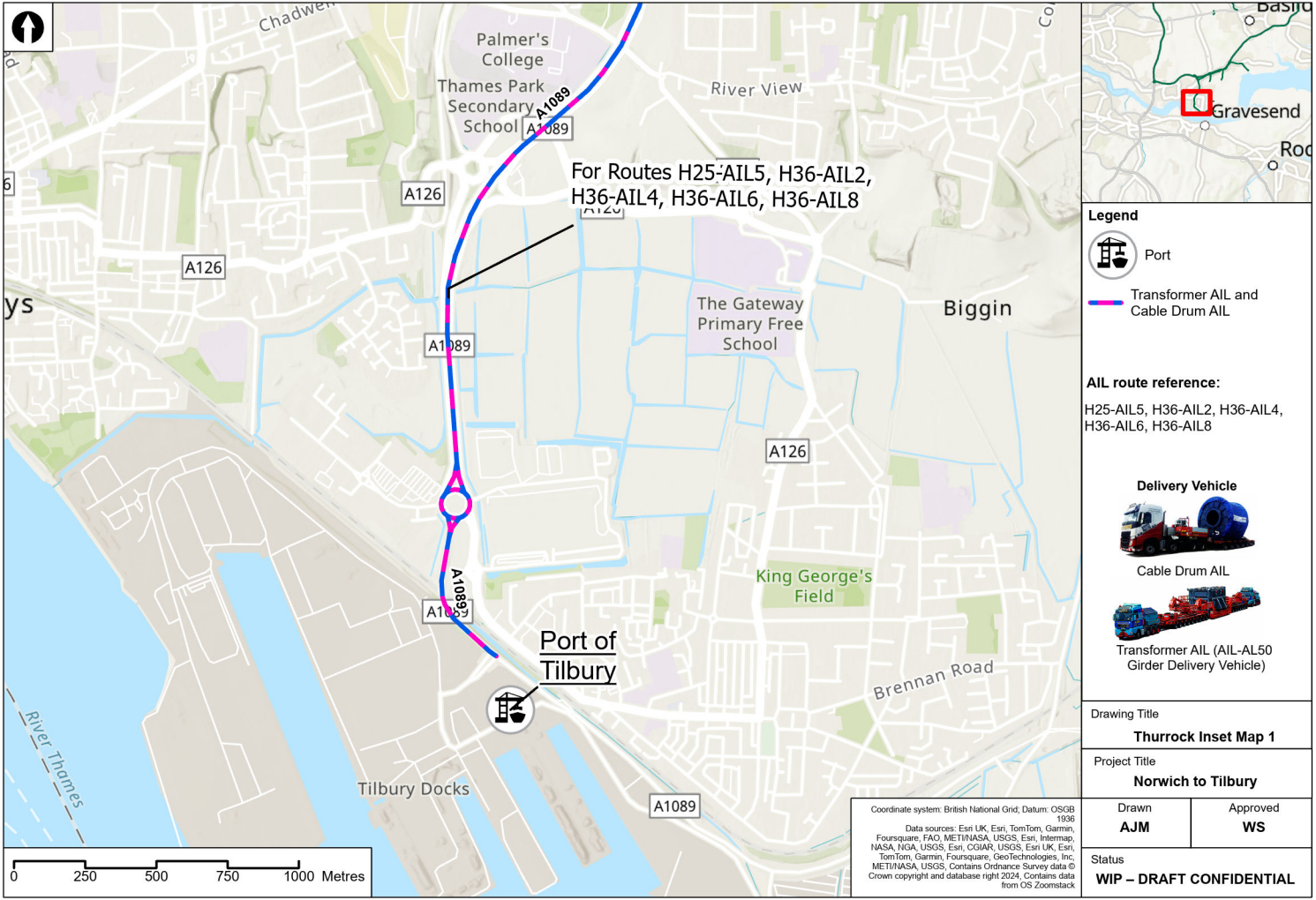
Project Title

Norwich to Tilbury

Drawn	Approved
AJM	**WS**

Status

WIP – DRAFT CONFIDENTIAL



Coordinate system: British National Grid; Datum: OSGB 1936

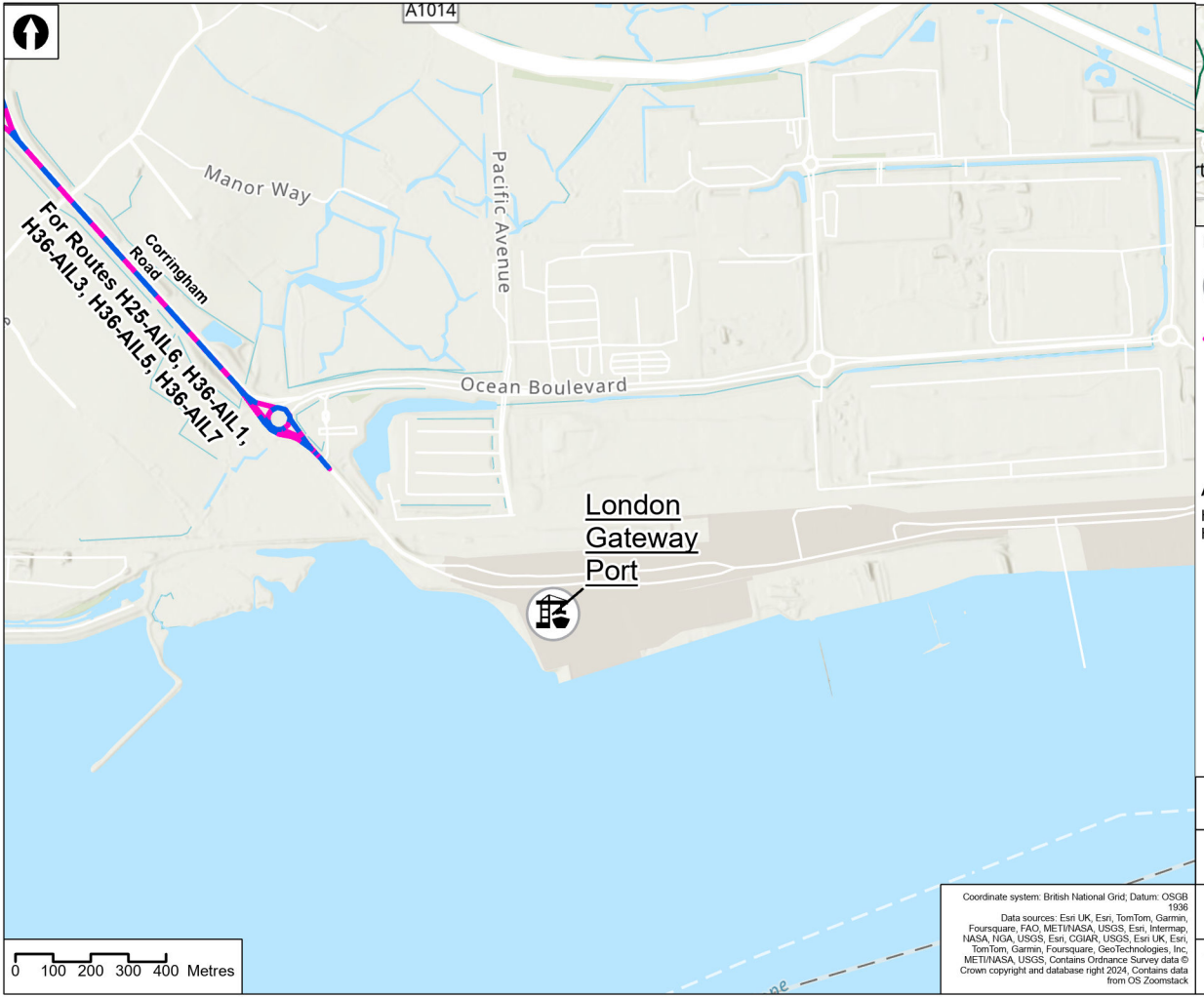
Data sources: Esri UK, Esri, TomTom, Garmin, Foursquare, FAO, METI/NASA, USGS, Esri, Intermap, NASA, NGA, USGS, Esri, CGIAR, USGS, Esri UK, Esri, TomTom, Garmin, Foursquare, GeoTechnologies, Inc, METI/NASA, USGS, Contains Ordnance Survey data © Crown copyright and database right 2024, Contains data from OS Zoomstack

Drawing Title
Thurrock Inset Map 1

Project Title
Norwich to Tilbury

Drawn	Approved
AJM	**WS**

Status
WIP – DRAFT CONFIDENTIAL



Legend

Port

Transformer AIL and Cable Drum AIL

AIL route reference:

H25-AIL6, H36-AIL1, H36-AIL3, H36-AIL5, H36-AIL7

Delivery Vehicle

Cable Drum AIL

Transformer AIL (AIL-AL50 Girder Delivery Vehicle)

Drawing Title

Thurrock Inset Map 2

Project Title

Norwich to Tilbury

Drawn	Approved
AJM	**WS**

Status

WIP – DRAFT CONFIDENTIAL

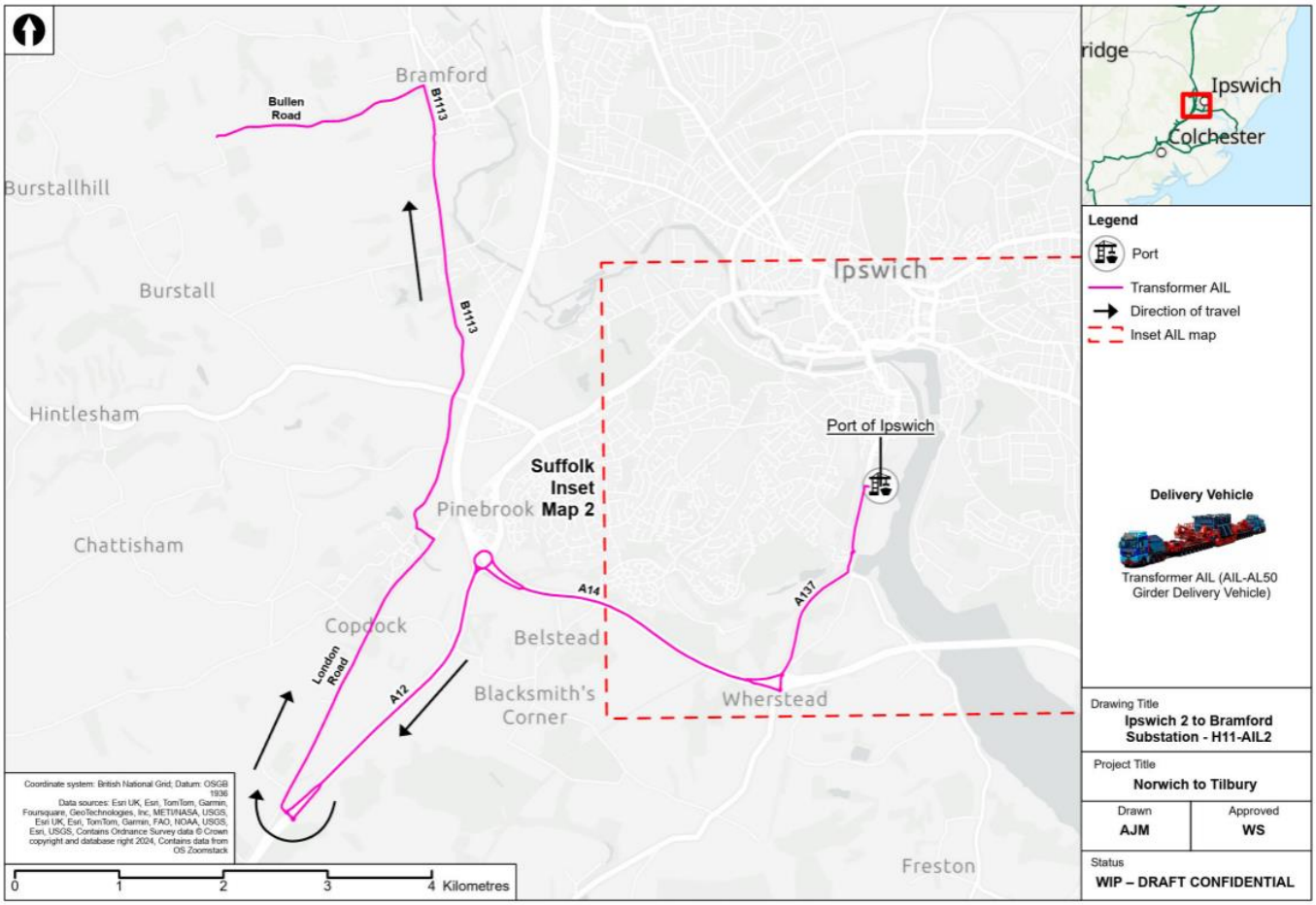
Annex D.
Details of Discounted Routes

Annex D
Details of Discounted Routes

D.1 H11-AIL2 – Ipswich to Bramford Substation (via A12)

D.1.1 Suffolk County Council noted concerns over the route through Copdock (H11-AIL2, shown in Figure D.1) as the Transformer Delivery AIL vehicle will not physically fit through parts of this route. Therefore, due to physical constraints, route H11-AIL2 has not been taken forward for further consideration.

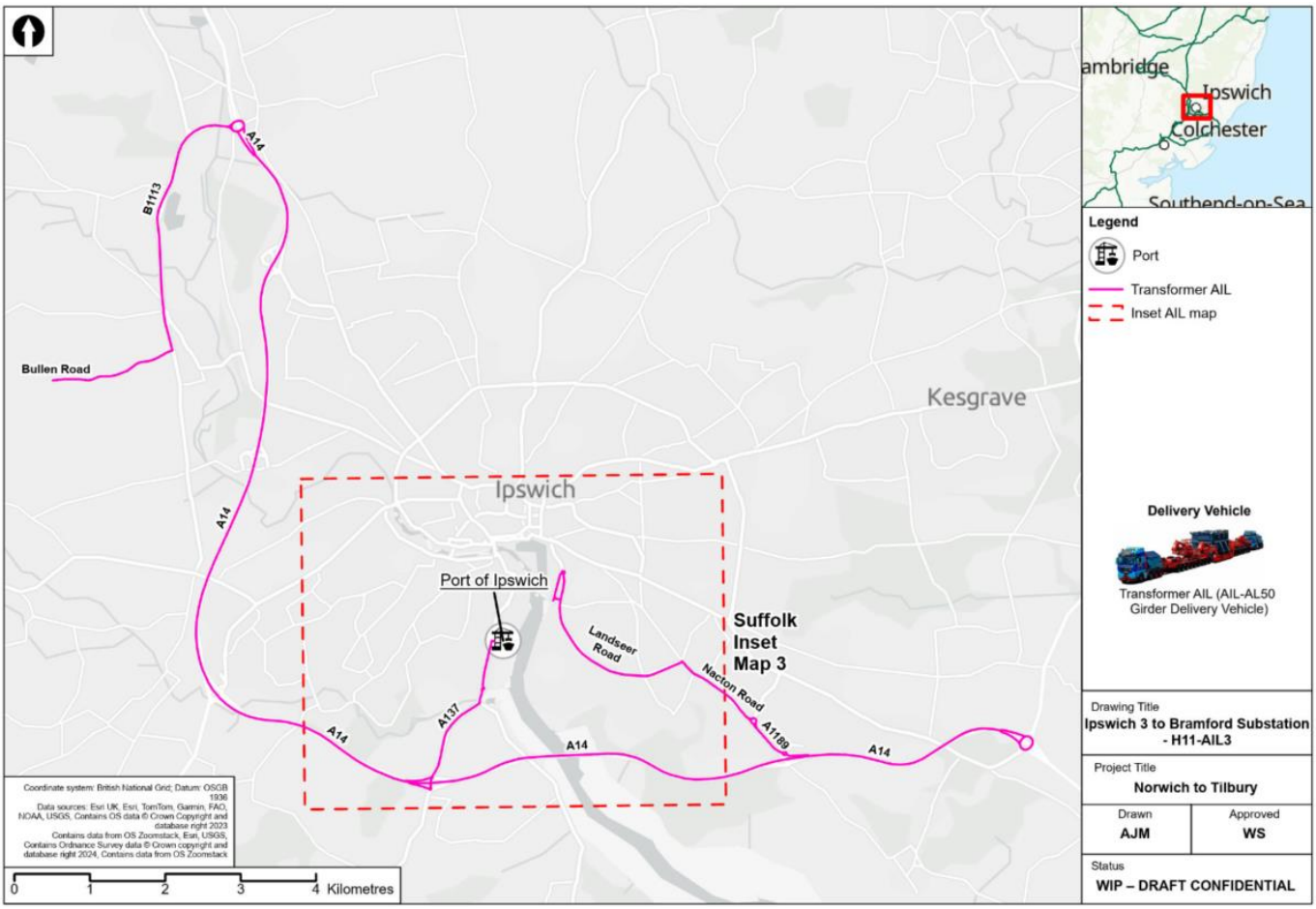
Figure D.1 H11-AIL2 – Ipswich to Bramford Substation (via A12)



D.2 H11-AIL3 – Ipswich to Bramford Substation (via Claydon)

D.2.1 The proposed route, a distance of 21km (from West Bank Quay) / 36km (from East Bank Quay), will be for the Transformer AIL Delivery vehicle only and will take the route as shown in Figure D.2. Based on the feedback received, route H11-AIL3 has not been taken forward for further discussion and assessment.

Figure D.2 H11-AIL3 – Ipswich to Bramford Substation (via Claydon)



D.2.2 The Transformer AIL Delivery vehicle using this route is classified as an SO movement.

D.2.3 Suffolk County Council noted there is an STGO Category 2 restriction on Ostrich Creek Bridge coming out of Port of Ipswich from the West Bank Quay Terminal. Historically an overbridge has been temporarily installed and dismantled for AIL movements, but this requires a road closure for the weekend. It has been suggested that departing from the East Bank Quay via Orwell Bridge is used as an alternative way out of Port of Ipswich.

D.2.4 Furthermore, Essex Constabulary, noted that Orwell Bridge is susceptible to strong winds and is often subject to closure in extreme weather conditions. It should be noted that this does not eliminate Orwell Bridge/East Bank Quay as an option but is something to be considered when planning AIL movements.

D.2.5 In order for H11-AIL3 to be considered a feasible route, the structures along the A14 up to Junction 52 as well as along the B1113 exit from the A14 J52 would need to be suitable for AIL vehicles. Suffolk County Council raised concerns over the additional structures along the extra section that differentiates it from route H11-AIL1, including the B1113 railway bridge (restricted to STGO Category 2) making it unsuitable for the Cable Drum and Transformer AIL.

D.2.6 Based on the feedback received, route H11-AIL3 has been discounted for further discussion and assessment.

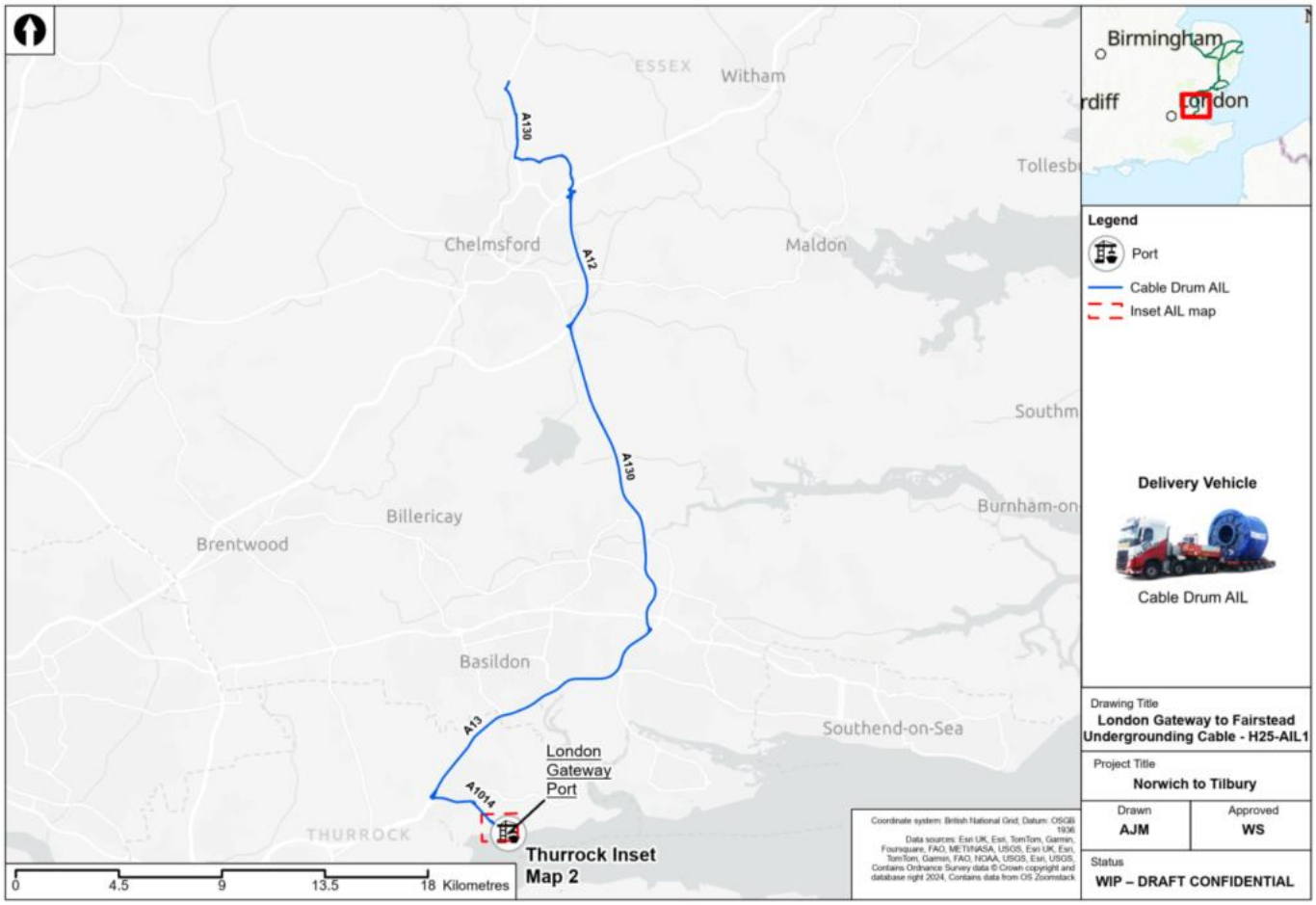
D.3 H11-AIL4 – Felixstowe to Bramford Substation

D.3.1 Routeing to Bramford Substation has been historically considered and assessed in other projects, such as Bramford to Twinstead Reinforcement (BTNO), another National Grid project. An assessment conducted on this project declared that the Port of Ipswich was the preferred start location based on suitable road routes to Bramford substation, the shorter distance to site, and the flexibility to offload cargo on both the western and eastern terminals of River Orwell. Therefore, to comply with policy requirements (Section 1.2) and aforementioned reasoning, the longer route starting from Felixstowe (H11-AIL4) has not been considered further.

D.4 H25-AIL1 – London Gateway (via A13) to Fairstead Compound

D.4.1 The proposed route, a distance of 49km, will be for the Cable Drum AIL Delivery vehicle only and will take the route as shown in Figure D.3.

Figure D.3 H25-AIL1 London Gateway (via A13) to Fairstead Compound



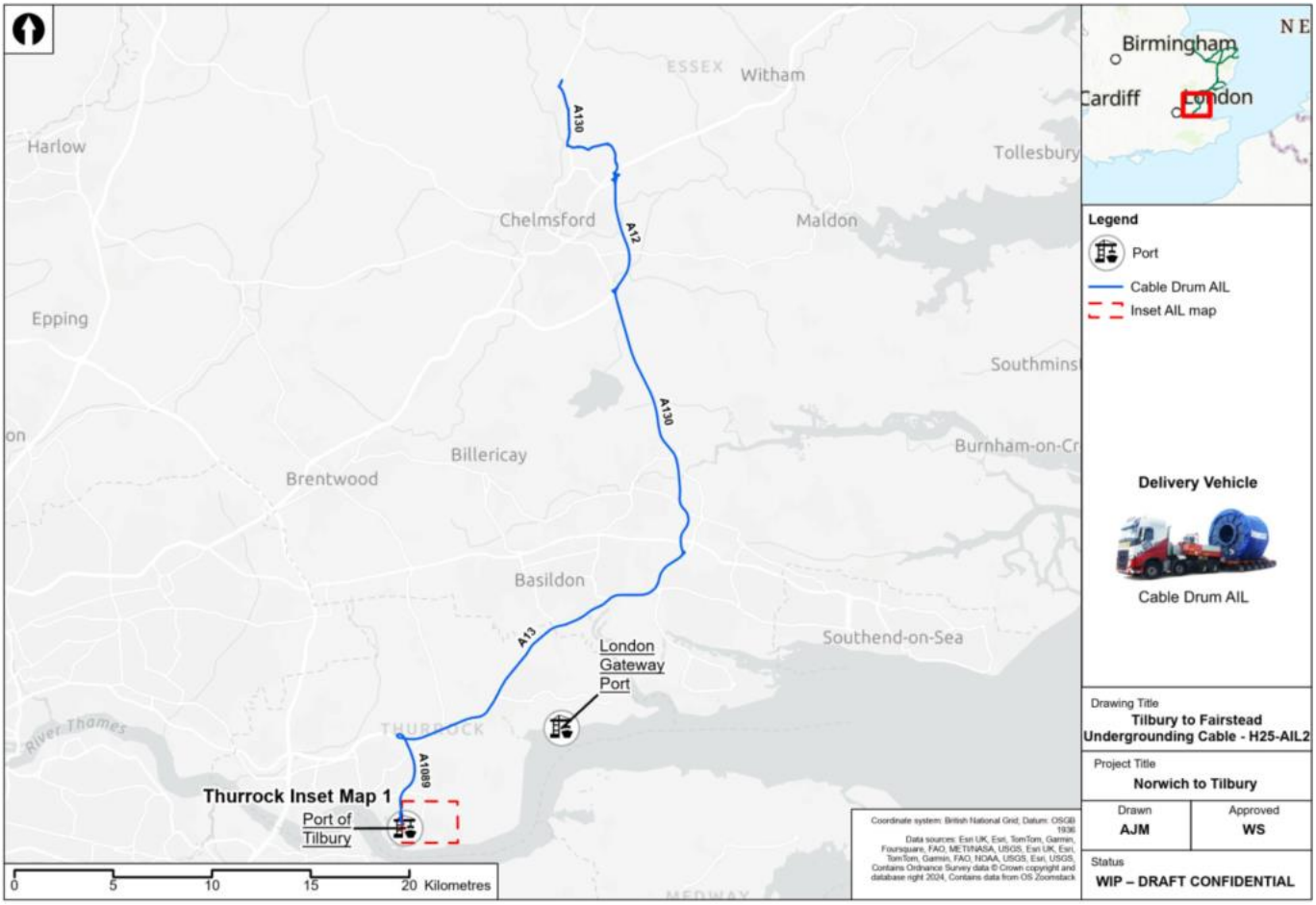
D.4.2 Essex County Council commented that there is an abnormal load ban on the A13 at the Pitsea Flyover, therefore making this route unsuitable for Cable Drum Delivery AIL vehicles.

D.4.3 Based on the feedback received, route H25-AIL1 has not been taken forward for further assessment.

D.5 H25-AIL2 – Tilbury (via A13) to Fairstead Compound

D.5.1 The proposed route, a distance of 56km, will be for the Cable Drum AIL Delivery vehicle only and will take the route as shown in Figure D.4.

Figure D.4 H25-AIL2 Tilbury (via A13) to Fairstead Compound



D.5.2 Essex County Council commented that there is an abnormal load ban on the A13 at the Pitsea Flyover, therefore making this route unsuitable for Cable Drum Delivery AILs vehicles.

D.5.3 Based on the feedback received, route H25-AIL2 has not been taken forward for further assessment.

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