

Norfolk Vanguard Offshore Wind Farm Outline Traffic Management Plan (tracked changes)

Part 3 of 4

Applicant: Norfolk Vanguard Limited
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[Deadline 7](#)

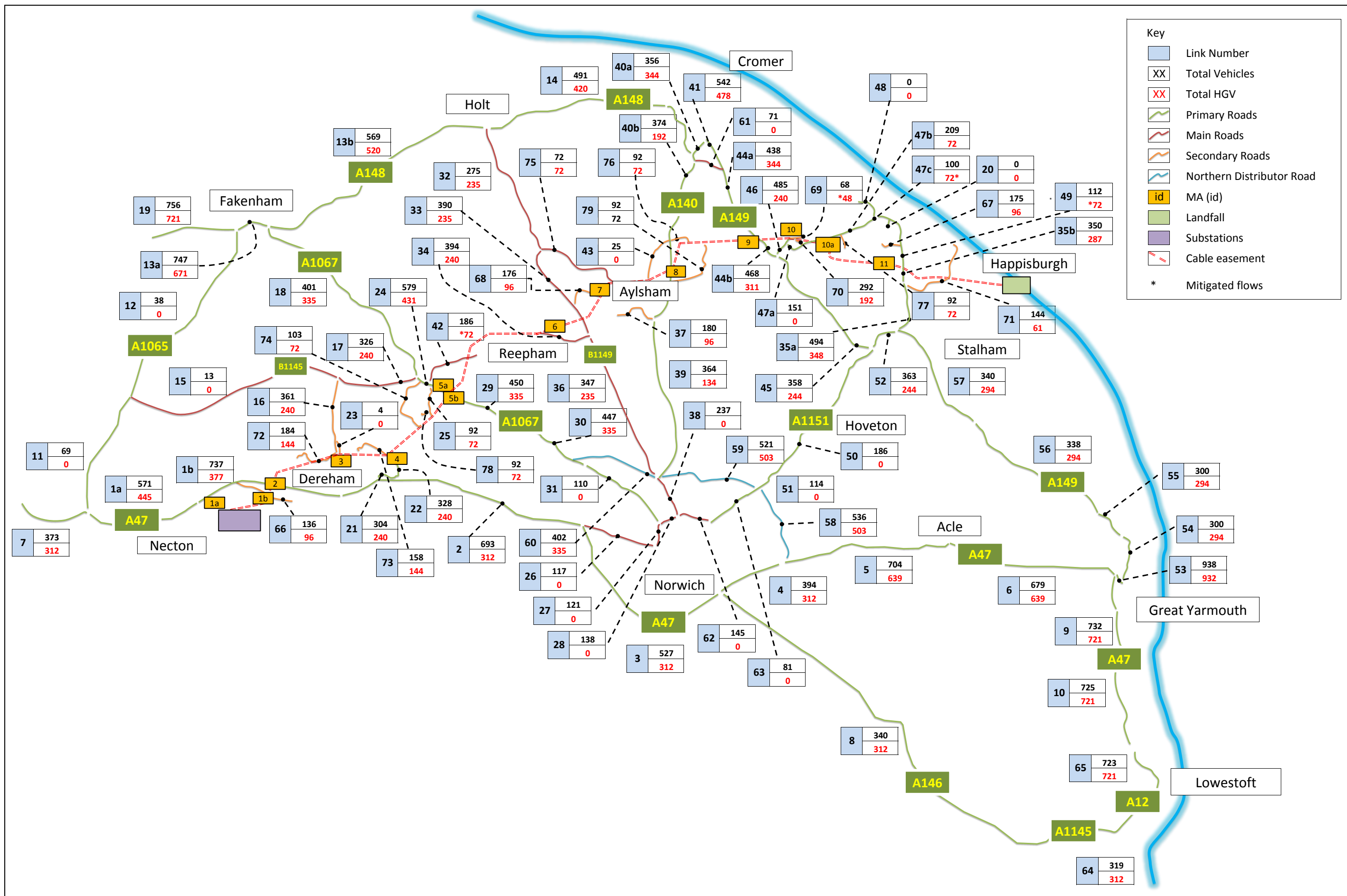
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Photo: Kentish Flats Offshore Wind Farm



APPENDIX 1: HGV DISTRIBUTION

[to be updated for Deadline 8 once all capped traffic levels have been agreed with highway stakeholders]



APPENDIX 2: ABNORMAL INDIVISIBLE LOAD STUDY

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Document Revisions

No	Date	Details
1	25/04/2018	Route B removed from report
2	25/04/2018	Updated to Client Comments

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Collett & Sons Ltd established in Halifax over 45 years ago specialise in the multimodal logistics throughout the UK, Europe and Worldwide.

Our Company owns a modern fleet of over 60 vehicles and over 100 trailers, operating from 3 depots located in Halifax, Goole and Grangemouth.

The depots situated in Goole and Grangemouth offer strategically located sites suitable to provide central hubs for the distribution of abnormal load components throughout the UK. Each facility is complete with up to 110 tonnes lifting capacity in order to be able to handle different abnormal load types. As logistical partners to the Wind Energy Industry, the company is able to offer the complete transport solution from point of manufacture through to job site.

Collett & Sons Limited operate an in-house consultancy that deals with transport feasibility, route and site access surveys, Swept Path Analysis, Traffic Management Plans, Test Drives and Environment Statements.

In addition to consulting services, Collett & Sons Limited delivers the following services;

- Marine
- Port Operation
- Heavy Lift Storage
- Heavy Transport
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- Heavy Lift
- General Haulage
- Warehousing
- Test Station (DVSA-authorised)
- SHEQ Training



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1 Executive Summary

- 1.1. One route has been assessed for the transportation of a 200Te Transformer from the Kings Lynn Port to proposed Norfolk Vanguard Site. The Route has been detailed along the A47 to site.
- 1.2. The start location within the Port of Kings Lynn has been chosen due to previous information regarding the heavy load quay within the dock.

Third party land

- 1.3. No third party land has been identified by the assessment.

Road widening

- 1.4. No road widening has been identified by the assessment.

Modifications to street furniture

- 1.5. Street furniture removal will be required at a number of locations along the route and have been detailed where required.

Manual Steering

- 1.6. Due to the vehicle configuration, manual steering will be utilised at numerous locations along the routes including roundabouts.

Vertical Alignment

- 1.7. There is an overhead bridge along Route A on the A47. Clarification of the bridge clearance height has been sought from the relevant authorities and the response has indicated a clearance of 5.18m critical. Additional clearance checks to be undertaken prior to any movements.

Structural Assessment

- 1.8. The relevant authorities who own or manage the structures on the route have been consulted regarding any potential issues along the proposed route. No negative responses have been received at time of issue although Kier Group, who manages the A47, would not comment without a formal BE16 being applied for.

Other areas of note

- 1.9. There are numerous overhead cables along both routes. Once the final loaded configuration and dimensions are finalised, the utilities services should be contacted regarding their cable heights. It may be that some cables will have to be removed or a specialist team join the delivery convoy to raise the cables, where required.
- 1.10. Tree pruning will be required along the route to ensure a suitable clearance is available for the load.

2. Introduction

- 2.1 Collett & Sons Ltd. were commissioned by Royal Haskoning DHV (RHDHV) to undertake an abnormal loads route access study to assess the transportation of a 200Te Transformer to the Norfolk Vanguard Site, off A47 near Necton, Norfolk (the site).
- 2.2 The site is located off the A47 near Necton, Norfolk. The purpose of this report is to detail access to the entrance of Norfolk Vanguard site from Kings Lynn Harbour.

Methodology

- 2.3 An initial desk based study was undertaken to identify possible loading configurations for the component (details confirmed by RHDHV).
- 2.4 The route surveyed in this report has been identified by Collett.
- 2.5 A site visit was then carried out to determine the feasibility of the identified routes and pinch points.
- 2.6 Following the site visit, Swept Path Analysis (SPA) was then carried out at the identified pinch points. The SPA's are detailed in this report, and indicate any areas of road widening or land take that are required.
- 2.7 All drawings are produced using Ordnance Survey 'OS MasterMap' mapping data, unless stated otherwise. Street furniture is not included on OS MasterMap data; this is plotted by taking measurements on site with a tape. Actual road widths are also checked and adjusted on the map data accordingly. Where adjustments to the OS MasterMap data have been made this is indicated as 'adjusted' on the drawing.
- 2.8 The analysis is based on the most onerous components when loaded on delivery vehicles.
- 2.9 The trailers used to transport the component modular. Manual Steering indicates that the steering of the axles is controlled by an operative using an override device. Manual Steering can be used to achieve alternative swept areas where appropriate.
- 2.10 Upon selection of the route, the relevant authorities were contacted with regard to the structural suitability of the delivery route for the heaviest loaded vehicle.
- 2.11 Details pertaining to the highway boundary have not been obtained from the County Council, thus in order to determine the impact on third party land it has been assumed that fence lines, walls and hedgerows define this boundary.
- 2.12 In addition, the report is supplemented by photographic evidence, map referencing and CAD drawings of the 'pinch points' for the proposed routes.

3. Components

- 3.1. RHDHV have requested that the assessment on which this report is compiled be based on the delivery of a 200Te Transformer.
- 3.2. The transformer specification was supplied by RHDHV.

4. Abnormal Indivisible Load Profiles

- 4.1. The abnormal loads are assessed based on weight, length, width and height and loaded to the most appropriate vehicle, the weights and dimensions of these are detailed below. The loading diagrams are detailed in APPENDIX 1.

4.2.	314597-A
200te Transformer	
	Loaded vehicle dimensions
Overall vehicle Length	66.06m
Rigid Length	27.04m
Width	4.929m
Height	5.10
G.V.W excluding tractor units	332.86Te

5. Requirements for the movement of Abnormal Indivisible Loads

5.1. An abnormal load is defined as below (including the actions required for permitting and notice).

Weight

- 5.2. Gross weight or axle weights exceeding C & U or Authorised Weight limits up to 80,000kgs (78.74 tons).
- 5.3. **Action required:** 2 clear days' notice with indemnity to Highway and Bridge Authorities.
- 5.4. Gross weight (of vehicle carrying the load) exceeding 80,000kgs (78.74tons) up to 150,000kgs (147.63tons).
- 5.5. **Action required:** 2 clear days' notice to Police and 5 clear days' notice with indemnity to Highway and Bridge Authorities.
- 5.6. Gross weight (of vehicle carrying the load) exceeding 150,000kgs (147.63tons).
- 5.7. **Action required:** HA Special Order (form BE16), up to 8 weeks approval time, plus 5 clear days' notice to Police and 5 clear days' notice with indemnity to Highway and Bridge Authorities.

Width

- 5.8. Width exceeding 2.9 metres (for C & U loads) 3.0 metres (9' 10") up to 5.0 metres (16' 5") for other loads
- 5.9. **Action required:** 2 clear days' notice to the Police.
- 5.10. Width exceeding 5.0 metres (16' 5") up to 6.1metres (20')
- 5.11. **Action required:** HA form VR1 plus 2 clear days' notice to Police.
- 5.12. Width exceeding 6.1 metres (20')
- 5.13. **Action required:** HA Special Order (form BE16), up to 8 weeks approval time, plus 5 clear days' notice to Police and 5 clear days' notice with indemnity to Highway and Bridge Authorities.

Length

- 5.14. When exceeding 18.65 metres (61' 2") up to 30 metres (98' 5") rigid length - (Vehicle or train of vehicles)
- 5.15. **Action required:** 2 clear days' notice to the Police.
- 5.16. Vehicle combination exceeding 25.9 metres (85').
- 5.17. **Action required:** 2 clear days' notice to the Police.
- 5.18. When exceeding 30.0 metres (98' 5") rigid length.
- 5.19. **Action required:** HA Special Order (form BE 16), up to 8 weeks approval time, plus 5 clear days' notice to Police and 5 clear days' notice with indemnity to Highway and Bridge Authorities.

Bridge Height

- 5.20. Any low bridges along the route that have a clearance less than 5.0m will be signed as a low bridge. This threshold could create difficulties in the passage of over-height or near over-height vehicles.

Abnormal Load Requirements

5.21. For the specified abnormal load, the following actions will be required for the delivery vehicle.

5.22.	314597-A	Action Required
	200te Transformer	HA Special Order (form BE16), up to 8 weeks approval time, plus 5 clear days notice to Police and 5 clear days notice with indemnity to Highways and Bridge Authorities.

7. Responses from Statutory Consultees (Structures Suitability)

7.1. The loading information for this transformer configuration has been sent to the relevant authorities to ascertain if there are any issues with weights and structures within the areas of the Authorities jurisdiction – Details of the authorities can be found below.

7.2. For the purposes of the responses below, the routes referred to are as follows

Route:

- Exit Kings Lynn Harbour onto Edward Benefer Way,
- Continue on Edward Benefer Way to merge onto Grimston Road A148.
- Continue on A148 to roundabout junction with A149 Queen Elizabeth Way,
- At roundabout turn right onto A149 Queen Elizabeth Way,
- Continue on A149 through 2 roundabouts to roundabout junction with A47,
- At roundabout turn left onto A47,
- At roundabout turn left onto A47,
- At roundabout, continue on A47,
- At roundabout continue on A47,
- Continue on A47 to proposed site entrance on the right hand side at approx. OS Grid refs: TF 89245 11382.

7.3. The following summarises the correspondence between the relevant authorities. The detailed responses can be viewed in APPENDIX 3.

County Council Highways	Issues?	Contact Name	Email Address	Phone Number
Norfolk Council	No	Mark North	Pandt.bridges@norfolk.gov.uk	01603 223804
Area 6	No Comment	John Hughes	John.Hughes@kier.co.uk	01223 255255
Network Rail	No	Katie Nicholson	Katie.Nicholson@networkrail.co.uk	01908 783 140
Historic Railways Estate	No	Tania Howell	Tania.Howell@jacobs.com	0118 946 8911
Canal and river trust	Not responded	N/A	abnormal.loads@canalrivertrust.org.uk	0113 2005759

Summary of Structural Issues

7.4. At the time of issue, Canal and River Trust have yet to respond and Area 6 could not comment without a formal BE16 application. Responses from the other authorities in the table above have not highlighted any structural issues.

9. Recommendations

- 9.1. If suitable agreements and necessary amendments to the route can be made with both the highway authorities and land owners then this route is recommended for the delivery of all the components.
- 9.2. These recommendations are made from a purely transport orientated view, and do not consider any political issues in terms of land ownership, or any other precincts raised, that may otherwise be restrictive. It is recommended to have adequate warning signs implemented to warn other road users at critical points along the route.
- 9.3. All hedges, shrubs, bushes, trees and overhanging branches along the nominated routes must be trimmed to allow a minimum envelope on the road of 7.5m wide by 7.5m high for load A and for load B they should be 6.0m by 6.0m.
- 9.4. All street furniture, signage etc. along the nominated route must be removed to allow a minimum envelope on the road of 7.5m by 7.5m high for load A and for load B they should be 6.0m by 6.0m. Other specific street furniture has been nominated in this report to facilitate 'over-sailed' and 'swept' areas.

10. Important notes

- 10.1. The loaded configuration is based on a generic load size identified by Royal Haskoning DHV. No technical drawings were received of the Transformer and it is possible that the load cannot be loaded in the configuration identified in this report. If this is the case, it may result in different loaded dimensions and as a result, the route becoming unsuitable.
- 10.2. Police escort or Pilot car will be required for all component trailers to negotiate the route, in order to assist with traffic control and control oncoming traffic flow.
- 10.3. The information contained in this report is privileged and confidential and is for the exclusive use of the client nominated herein.
- 10.4. All access diagrams and assessments are made and calculated for the road movement of loaded trailer equipment carrying the components. These dimensions are based on the turning circles and specification of Collett & Sons Ltd trailer equipment.
- 10.5. Land take is usually referred to when land is required from Private Land Owners; road widening is usually referred to when land is required within highways boundaries. The boundaries between private land and highways property are assumed by using obvious demarcation such as fence lines/hedges etc. It should be noted that actual boundaries between highways and private land are not substantiated in this report and can only be authenticated by carrying out land searches.
- 10.6. All drawings produced of swept path diagrams are illustrated by using the automatic steering principle for the steerable trailers, unless otherwise stated. However, all steerable trailers have a manual override system that if used will alter the path of the trailer.
- 10.7. All drawings are produced using Ordnance Survey 'OS MasterMap' mapping data, unless stated otherwise. Street furniture is not included on OS MasterMap data, this is plotted by taking measurements on site with a tape, actual road widths are also checked and adjusted on the map data accordingly. Where adjustments to the OS MasterMap data have been made this is indicated as 'adjusted' on the drawing.
- 10.8. All route assessment, proposed land-take and removal/re-instatement of nominated street furniture is deemed accurate by Collett & Sons Ltd at the date that this report is created. We cannot be held responsible for the development of future road schemes or alterations to the routes surveyed that may leave this report inaccurate.

11. List of Drawing Numbers

11.1. Transformer

Drawing No	Title
314597-100A1.1	Exit from Kings Lyn port
314597-120A1.1	A148 roundabout junction with A149
314597-130A1.1	A149 roundabout junction with A1076
314597-140A1.1	A149 roundabout junction with Sainsbury's
314597-150A1.1	A149 roundabout junction with A47
314597-160A1.1	A47 Roundabout
314597-170A1.1	A47/A1122 Roundabout
314597-180A1.1	A47/Norwich Road Roundabout
314597-190A1.1	Proposed site entrance off A47

APPENDIX 1 - ELEVATION DRAWINGS OF SWEEP PATH MODELS

APPENDIX 2 – SWEPT PATH ANALYSIS

