

EXPERTS IN MOTION

Primary Route Assessment -Firlough Wind Farm, County Mayo, Ireland - Charlestown Route

Wednesday, 29 March 2023 Prepared For Jennings O Donovan 101 Locations Assessed

REPORT DETAILS

REPORT FOR

Jennings O'Donovan Finisklin Business Park Sligo Ireland F91 RHH9

ATTENDEES OF THE SURVEY

Spencer Budgen

DATE AND TIME OF THE SURVEY

Thursday 13th April 2023

GENERAL WEATHER CONDITIONS

Clear

ISSUED BY

Spencer Budgen

APPROVED BY

Steven Mangham

DOCUMENT REVISIONS

No	Date	Details
Rev 1	30/05/23	Detailed route from N59 added

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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 throughout the UK. Each facility is complete with up to 110 tonnes lifting capacity. 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 Project Management Freight Forwarding Heavy Lift General Haulage Warehousing Test Station (DVSA-authorised) SHEQ Training



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ROUTE ASSESSMENT OVERVIEW

This section of the report illustrates the route assessed for the delivery of a Siemens SG155 blade component to the proposed Firlough Wind Farm, Near Ballina, Co. Mayo, Ireland.

All the routes surveyed in this report have been identified by Collett Consulting and have been detailed in this report based on the following maximum dimensions instructed by Jennings O'Donovan. The route has been assessed for the Blade component only, based on Super Wing Carrier and Blade Lift Adapter configurations.

Route A

Start Location	N5	Distance	Km	Miles
Max Load Dims:	77m Rigid Length Approx. 4.4m width	of Route	173	107
 Exit the Po At the junct At Connolly At the junct At the junct At the junct At the roun At the roun At the roun At the roun At the junct 		a Road College Rd vards Taum Road. Tuam Road. aight onto the N83. e 1 st exit onto the N17. take the 2 nd exit onto the towards the L1331. cowards Charlestown. onto the N17. raight on the R294. ke the 1 st exit onto the	the road tow N4.	
 Continue of At mini rout At mini rout Continue of Turn left on 	n the N4 and contraflow the s ndabout, turn right onto N59 ndabout, turn right onto N59 n N59 through Dromore West	lip road onto the N59.		1 N821578

MAP OVERVIEW



ROUTE ASSESSMENT

LOCATION OVERVIEW





















Location 1 - Exit From The Port Of Galway

Direction - Exit The Port Onto Dock Street

Visual inspection indicates that the loaded components will navigate out of the port.

The Port has been upgraded to accept larger blade components.



Location 2 - Dock Street/Lough Atalia Road Junction

Direction - Continue Straight Onto Lough Atalia Road

Visual inspection indicates that the street furniture on the offside of the junction is to be removed.



Location 3 - Lough Atalia Bridge

Direction - Continue On Lough Atalia Road

Visual inspection indicates that there are no issues at this location. Blade will encroach into the buffer zone but not impact the bridge.



Location 4 - Lough Atalia Road/R339 Junction

Direction - Turn Right Onto R339

Visual inspection indicates that a contraflow manoeuvre will be required at this junction.

Inspection indicates that a road sign, bollard, and traffic signal on the splitter island is to be removed.

Traffic signal on the offside to be removed.



Location 5 - R339/R338 Junction

Direction - Continue On R339

Visual inspection indicates that a contraflow manoeuvre will be required at this location.



Location 6 - Splitter Islands On R339

Direction - Continue On R339

Visual inspection indicates that the flexi bollards on the splitter Islands are to be flattened for deliveries to allow for oversail of the splitter Islands.



Location 7 - R339/Connolly Avenue Junction

Direction - Turn Left

Swept Path Analysis indicates that the traffic signal on the nearside of the junction is to be removed.

Manual steering required to assist navigation.



Location 8 - R336 Junction

Direction - Turn Right Onto R336

Swept Path Analysis indicates that road widening will be required on the offside of the junction. 2 lamp posts on the offside are required to be removed.



Location 9 - R336/N6/N83 Junction

Direction - Continue Straight Onto N83 Visual inspection indicates that there are no issues at this location.



Location 10 - Splitter Island On N83

Direction - Continue On N83

Visual inspection indicates that there are no issues at this location.



Location 11 - Splitter Island On N83 At Knockdoe

Direction - Continue On N83

Visual inspection indicates that the street furniture on the splitter island is to be removed.

Sign is socketed.

Location 12 - Splitter Island On N83 At Knockdoe

Direction - Continue On N83





Location 13 - Splitter Island On N83 At Knockdoe

Direction - Continue On N83

Visual inspection indicates that the street furniture on the splitter island is to be removed.



Location 14 - Splitter Island On N83 At Knockdoe

Direction - Continue On N83

Visual inspection indicates that the street furniture on the splitter island is to be removed.

Sign is socketed.



Direction - Continue On N83





Location 16 - Splitter Island On N83 At Knockdoe

Direction - Continue On N83

Visual inspection indicates that the street furniture on the splitter island is to be removed.



Location 17 - Splitter Island On N83 At Knockdoe

Direction - Continue On N83

Visual inspection indicates that the street furniture on the splitter island is to be removed.

Sign is socketed.



Location 18 - Splitter Island On N83 At Knockdoe

Direction - Continue On N83



Location 19 - N83/N17/M17 Roundabout

Direction - Take 1st Exit Onto N17

Swept Path Analysis indicates that road widening is required on the entry splitter island. Road signs on the offside splitter island to be removed due to rear projection on the blade. Road signs on the nearside to be removed due to blade oversail.



Location 20 - N17 Roundabout

Direction - Tale 1st Exit Onto N17

Swept Path Analysis indicates that the road signs on the entry Splitter Island are required to be removed due to rear projection oversail. The road sign and 2 lamp posts on the nearside are required to be removed due to blade oversail.

Street furniture on these islands to be removed.



Location 21 - Splitter Island On N17 At Milltown

Direction - Continue On N17



Location 22 - Splitter Island On N17 In Milltown

Direction - Continue On N17

Visual inspection indicates that the street furniture on the splitter island is to be removed.



Location 23 - Left Bend On N17 In Milltown

Direction - Continue On N17

Swept path analysis indicates that the road sign on the nearside is required to be removed. Tree pruning is required on the nearside due to blade oversail.



Location 24 - Left Bend On N17 In Milltown

Direction - Continue On N17

Swept Path Analysis indicates that the loaded vehicle will navigate utilising manual steering.



Location 25 - Right Bend On N17 In Milltown

Direction - Continue On N17

Swept Path Analysis indicates that the loaded vehicle will navigate utilising manual steering.



Location 26 - Splitter Island On N17 In Milltown

Direction - Continue On N17

Visual inspection indicates that the street furniture on the splitter island is to be removed.



Location 27 - Right Bend On N17 At Milltown

Direction - Continue On N17

Visual inspection indicates that the loaded vehicle will navigate utilising manual steering.



Location 28 - Splitter Island On N17 At Ballindine

Direction - Continue On N17

Visual inspection indicates that the street furniture on the splitter island is to be removed.



Location 29 - Splitter Island On N17 In Ballindine

Direction - Continue On N17

Visual inspection indicates that the street furniture on the splitter island is to be removed.



Location 30 - Splitter Island On N17 In Ballindine

Direction - Continue On N17

Visual inspection indicates that the flexi bollards on the splitter island are to be removed to allow for oversail.



Location 31 - Splitter Island On N17 In Ballindine

Direction - Continue On N17

Visual inspection indicates that the flexi bollards are to be removed to allow for oversail.



Location 32 - Splitter Island On N17 In Ballindine

Direction - Continue On N17

Visual inspection indicates that the street furniture on the splitter island is to be removed.



Location 33 - Splitter Island On N17 In Ballindine

Direction - Continue On N17



Location 34 - Splitter Island On N17 In Ballindine

Direction - Continue On N17

Visual inspection indicates that the street furniture on the splitter island is to be removed.



Location 35 - N17 / N5 Roundabout Charllestown

Direction - Take the 2nd Exit

Swept Path Analysis indicates a contraflow manoeuvre is required to reduce the modifications required.

Third-party land is required on the offside. Road widening is required on the offside. Street furniture to be removed on the offside and entry Splitter Island.



Location 36 - N5 / Unnamed Road Junction

Direction - Turn Right

Swept Path Analysis indicates that road widening is required on the offside of the junction. Lamp posts on both sides of the junction to be removed.

Tree pruning is required on both sides of the junction.



Location 37 - N5 Junction With Unnamed Road

Direction - Turn Left

Swept Path Analysis indicates that earthworks are required on the nearside to allow the trailer to navigate.

Tree removal required on the nearside.



Location 38 - Unnamed Road Junction With L1331

Direction - Turn Left

Swept Path Analysis indicates the telegraph pole and signpost on the offside are to be removed. Signpost on the nearside required to be removed. Tree pruning required both sides of the junction.



Location 39 - L1331 / N5 Junction In Charlestown

Direction - Turn Right

Swept Path Analysis indicates the central island is required to be cleared of any obstructions to allow the trailer body to navigate.

The bollards on the offside are required to be removed along with tree pruning.



Location 40 - N17 / R294 Junction Tobercurry

Direction - Continue On R294

Swept path Analysis indicates that the loaded vehicle will navigate this location without any issues



Location 41 - Right Bend In Tobercurry R294

Direction - Continue Straight

Swept Path Analysis indicates that the loaded vehicle will navigate this location utilising manual steering.



Location 42 - Left Hand Bend In Tobercurry R294

Direction - Continue Straight

Swept Path Analysis indicates that the loaded vehicle will navigate this location utilising manual steering.



Location 43 - R294 / N17 Junction In Tobercurry

Direction - Rejoin The N17

Swept Path Analysis indicates that road widening is required on the protruding kerb. The lamp post and bollard on this kerb are required to be removed.



Location 44 - N17 / N4 Roundabout In Collooney

Direction - Take 1st Exit Onto N4

Swept Path Analysis indicates that the loaded vehicle will navigate this location utilising manual steering.

After taking the 1st Exit, the loaded vehicle is required to contraflow onto the exiting dual carriageway.



Location 45 - N4 Roundabout With R290

Direction - Take 2nd Exit Onto N4

Swept Path Analysis indicates that the 2 lamp posts on the nearside entry are required to be removed.

The chevron sign on the roundabout is required to be removed. After taking the 2nd Exit, the loaded vehicle is required to contraflow onto the exiting dual carriageway.



Location 46 - N4 / N59 Slip Road

Direction - Contraflow The N4 Slip Road To Join The N59

Swept Path Analysis indicates that the 4 lamp posts on the offside of the bend are required to be removed to allow the blade and trailer to oversail. The signposts on the offside are required to be removed to allow the rear projection to oversail.



Location 47 - Left Bend On N59 Direction - Continue On N59 Visual inspection indicates that pruning is required on both sides of the road. Manual steering required.



Location 48 - Right Bend On N59 Direction - Continue On N59 Visual inspection indicates that pruning is required on both sides of the road. Manual steering required.



Location 49 - Left Bend On N59

Direction - Continue On N59

Visual inspection indicates that the blade rotated to 60 degrees will navigate without issue.

All overhead lines from transhipment point to the other transhipment point are to be removed to allow the blade to utilise the airspace. Manual steering required.



Location 50 - Splitter Island On N59

Direction - Continue On N59

Visual inspection indicates that the street furniture on the splitter island is to be removed.



Location 51 - Mini Roundabout On N59 In Ballysadare

Direction - Take 3rd Exit At The Roundabout

Visual inspection indicates that the blade will oversail third party land on the nearside.

Any overhead obstructions to be removed.



Location 52 - Section Through Ballysadare

Direction - Continue On N59

Visual inspection indicates that overhead cables are to be removed for the raised blade in the lift adapter.



Location 53 - N59/R290 Mini Roundabout

Direction - Take 2nd Exit At The Roundabout

Visual inspection indicates that the raised blade in the lift adapter will oversail beyond the bridge parapet on the offside.

Any overhead obstructions to be removed.

Manual steering required.



Location 54 - Left Bend And Crest On N59 At Ballysadare

Direction - Continue On N59

Visual inspection indicates that the overhead cables are to be removed.

Vertical Analysis of the Crest required to determine whether there are any issues.



Location 55 - Splitter Island On N59 At Ballysadare

Direction - Continue On N59



Location 56 - Left Bend On N59

Direction - Continue On N59

Visual inspection indicates that third party land is required on the nearside if the blade is transhipped back to the standard loading prior to this location. If not, it is recommended to be transhipped immediately following this location if land agreements allow.

Wall, trees, and fence on the nearside to be removed.

If blade is still on lift adapter, overhead cables to be removed.

<u>The remainder of the route is based on standard</u> <u>transport.</u>



Location 57 - Left Bend On N59

Direction - Continue On N59

Visual inspection indicates that the blade will navigate utilise manual steering.



Location 58 - Right Bend On N59

Direction - Continue On N59

Visual inspection indicates that the blade will navigate this bend utilising manual steering.



Location 59 - Left Bend On N59 Direction - Continue On N59

Visual inspection indicates that pruning is required on both sides of the road.

Utility Pole on the offside to be removed.

Manual steering required.



Location 60 - Right Bend On N59 Direction - Continue On N59 Visual inspection indicates that pruning is required on both sides of the road. Manual steering required.



Location 61 - Right Bend On N59 Direction - Continue On N59 Visual inspection indicates that the loaded blade will navigate without issue.



Location 62 - Crest On N59

Direction - Continue On N59

Visual inspection indicates that vertical analysis will be required to determine whether grounding occurs at this location.



Location 63 - Crest On N59

Direction - Continue On N59

Visual inspection indicates that vertical analysis is required to determine whether grounding occurs at this location.



Location 64 - Left Bend On N59

Direction - Continue On N59

Visual inspection indicates that pruning is required on both sides of the road.

Manual steering required.



Location 65 - Crest On N59

Direction - Continue On N59

Visual inspection indicates that vertical analysis is required to determine whether grounding will occur at this location.



Location 66 - Crest On N59

Direction - Continue On N59

Visual inspection indicates that vertical analysis is required to determine whether grounding will occur at this location.



Location 67 - Left Bend On N59

Direction - Continue On N59

Visual inspection indicates that pruning will be required on the offside of the road.



Location 68 - Right Bend On N59

Direction - Continue On N59

Visual inspection indicates that pruning will be required on both sides of the road.

Manual steering required.



Location 69 - Entry Splitter Island On N59 At Dromore West

Direction - Continue On N59

Visual inspection indicates that the street furniture on the splitter island to be removed.



Location 70 - Splitter Island On N59 At Dromore West

Direction - Continue On N59


Location 71 - Splitter Island On N59 At Dromore West

Direction - Continue On N59

Visual inspection indicates that the street furniture on the splitter island to be removed.



Location 72 - Spitter Island On N59 At Dromore West

Direction - Continue On N59

Visual inspection indicates that the street furniture on the splitter island to be removed.



Location 73 - Crest And Dip On N59

Direction - Continue On N59

Visual inspection indicates that vertical analysis is required to determine whether any grounding issues will occur during navigation.



Location 74 - N59/L2604 Junction

Direction - Turn Left Onto L2604

Visual inspection indicates that third party land will be required on the nearside of the junction.

Trees and vegetation on the nearside to be removed.

Street furniture on the nearside to be removed.

Swept Path Analysis required to confirm modifications.



Location 75 - Left Bend On L2604

Direction - Continue On L2604

Visual inspection indicates that road widening is required on the offside of the road.

Tree Pruning required on both sides of the road.



Location 76 - Right Bend On L2604

Direction - Continue On L2604

Visual inspection indicates that road widening is required on the offside of the road.

Pruning required on both sides of the road.



Location 77 - Left Bend On L2604

Direction - Continue On L2604

Visual inspection indicates that road widening is required on the offside.

Pruning will also be required.



Location 78 - S Bend On L2604

Direction - Continue On L2604

Visual inspection indicates that road widening is required on the nearside of the road.

Pruning required on both sides of the road.



Location 79 - Left Bend On L2604

Direction - Continue On L2604

Visual inspection indicates that road widening is required on the offside of the road.

Pruning required on both sides of the road.





Direction - Continue On L2604

Visual inspection indicates that the road width narrows from this location onwards.

Road will require upgrading to the turbine manufacturers specification.

Pruning will be required to provide a clear envelope as stipulated in the manufacturer's specification.



Location 81 - Crest On L2604

Direction - Continue On L2604

Visual inspection indicates that vertical analysis is required to determine whether any grounding issues will occur during navigation.



Location 82 - Right Bend On L2604

Direction - Continue On L2604

Visual inspection indicates that third party land will be required at this location.



Location 83 - Narrow Section On L2604

Direction - Continue On L2604

Visual inspection indicates that road widening will be required on both sides of the road.

Road sign and telegraph pole on the offside to be removed.

Pruning required on both sides of the road.



Location 84 - Road Signs On L2604

Direction - Continue On L2604

Visual inspection indicates that road widening will be required on both sides of the road.

Road signs to be removed.



Location 85 - Crest On L2604 Direction - Continue On L2604

Visual inspection indicates that vertical analysis is required to determine whether any grounding issues will occur during navigation.



Location 86 - Crest On L2604

Direction - Continue On L2604

Visual inspection indicates that vertical analysis is required to determine whether any grounding issues will occur during navigation.



Location 87 - Right Bend On L2604

Direction - Continue On L2604

Visual inspection indicates that third party land will be required at this location.

Street furniture will require removal.



Location 88 - Left Bend On L2604

Direction - Continue On L2604

Visual inspection indicates that road widening is required on both sides of the road.

Telegraph Pole on the nearside to be removed.

Pruning required on both sides of the road.



Location 89 - Left Bend On L2604

Direction - Continue On L2604

Visual inspection indicates that road widening is required on the offside of the road.

Pruning required on both sides of the road.



Location 90 - Right Bend On L2604

Direction - Continue On L2604

Visual inspection indicates that road widening is required on the offside of the road.

Pruning required on both sides of the road.



Location 91 - Right Bend On L2604

Direction - Continue On L2604

Visual inspection indicates that road widening is required on the offside of the road.

Pruning required on the nearside of the road.



Location 92 - Left Bend On L2604

Direction - Continue On L2604

Visual inspection indicates that third party land will be required on the nearside of the road.

Trees and vegetation on the nearside to be removed.



Location 93 - Right Bend On L2604

Direction - Continue On L2604

Visual inspection indicates that third party land is required on the offside of the road.

Trees and vegetation on the offside to be removed.

Pruning required on the nearside.



Location 94 - Right Bend On L2604

Direction - Continue On L2604

Visual inspection indicates that third party land is required on the offside of the road.

Trees and vegetation on the offside to be removed.

Pruning required on the nearside.



Location 95 - L2604

Direction - Continue On L2604

Visual inspection indicates that the road will require upgrading to the turbine manufacturers specification.

Pruning will be required to provide a clear envelope as stipulated in the manufacturer's specification.



Location 96 - Left Bend On L2604

Direction - Continue On L2604

Visual inspection indicates that road widening is required on the offside of the road.

Pruning required on both sides of the road.



Location 97 - Tree On L2604

Direction - Continue On L2604

Visual inspection indicates that road widening is required on both sides of the road.

Tree on the nearside to be pruned.



Location 98 - Left Bend On L2604

Direction - Continue On L2604

Visual inspection indicates that third party land is required on the nearside of the road.

Trees and vegetation on the nearside to be removed.

Pruning required on the offside.



Location 99 - Crest On L2604

Direction - Continue On L2604

Visual inspection indicates that vertical analysis is required to determine whether any grounding issues will occur during navigation.



Location 100 - Bridge On L2604

Direction - Continue On L2604

Visual inspection indicates that the bridge will require replacing as it is currently too narrow to allow for turbine deliveries.

Widening will be required both before and after the bridge.



Location 101 - Proposed Site Location

Direction - Turn Left Into Site

Site Entrance to be constructed in accordance with the turbine manufacturers specification.

The whole of the L2604 will require upgrading to meet the manufactures specification in terms of road widths and vertical radii.

IMPORTANT NOTES

- Garda Escorts and Pilot cars will be required to negotiate the route, in order to assist with traffic control and control oncoming traffic flow.
- The information contained in this report is privileged and confidential and is for the exclusive use of the client nominated herein.
- All access diagrams and assessments are made and calculated for the road movement of loaded trailer equipment carrying components. These dimensions are based on the turning circles and specification of Collett & Sons Ltd trailer equipment.
- 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.
- 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.
- Route should comply with the turbine manufacturers minimum specifications for road width and clear envelope. Any locations where the minimum road dimensions are not met, should be upgraded. Any obstructions that impede within the clear envelope, such as street furniture, is to be removed.
- This report is a high level overview of the route based on the blade only. A full in depth survey should be undertaken, assessing all turbine components with further investigation measures such as Swept Path Analysis, to fully confirm the route suitability.