

CONSULTANTS IN ENGINEERING,
ENVIRONMENTAL SCIENCE &
PLANNING

Appendix 13-1

Turbine Delivery Route
Report



Carlow County Council, Planning authority, Viewing Purposes Only!

Pell Frischmann

Croaghau Wind Farm



Route Survey Report



May 2020
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1 Introduction

1.1 Purpose of the Report

Pell Frischmann (PF) has been commissioned by Coillte to undertake a route survey review of the Abnormal Indivisible Load (AIL) delivery route for wind turbine loads associated with the construction and development of Croaghaun Wind Farm, located to the west of Bunclody, in County Carlow.

The Route Survey Report (RSR) has been prepared to help inform Coillte on the issues associated with the development of the site with regards to off-site transport and access for AIL traffic. The review examines access from the Port of Dublin, through to the development site access junction.

The report identifies the key issues associated with AIL deliveries and notes that remedial works, either in form of physical works or as traffic management interventions will be required to accommodate the predicted loads.

The detailed designs of any remedial works are beyond the agreed scope of works between PF and Coillte at this point in time.

It is the responsibility of the wind farm developer to ensure that the entirety of the proposed access route is suitable and meets with their satisfaction. The developer will be responsible for ensuring that the finalised proposals meet with the appropriate levels of health and safety consideration for all road users has been made in accordance, in line with the relevant legislation at the time of delivery.



2 Site Background

2.1 Site Location

The development site is located to the west of Bunclody, County Carlow. Figure 1 illustrates the general site location.

Figure 1: Site Location Plan



2.2 Candidate Turbines

Coillte have indicated that they wish to consider access for turbines up to a maximum rotor diameter of 138m. Current turbines on the market include the Nordex N133, Vestas V136 and Enercon E138 (the E138 rotor is slightly larger than 138m).

The worst case blade option is the V136. Whilst the E138 blade is marginally longer, it is narrower than the V136, which provides a greater kinematic envelope. Nordex towers from the previous assessment of the access route have been used to provide a basis for tower loads along the route.

Tower and blade dimensions have been supplied by the manufacturers and are indicated below in Table 1.

Table 1: Turbine Dimensions

Section	Length (m)	Width (m)	Height (m)	Weight (t)
Vestas V136 Blade	66.770	4.04	2.75	15.701
Nordex N149 Top Tower	34.950	4.300	4.260	57.270



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2.3 Proposed Delivery Equipment

To provide a robust assessment scenario based upon the known issues along the access route, it has been assumed that all blades would be carried on a hybrid trailer. Where constraints are significant, it is possible to raise the scissor lift to a maximum of 10m in height. This allows loads to be either lifted over height constraints and to be slightly shortened in plan view.

Overhead utilities and obstructions should be removed at any locations that the blade is raised on the scissor lift. Towers would be carried in a 4+7 clamp adaptor style trailer, whereas loads such as the hub, nacelle housing and drive train would be carried on a six axle step frame trailer.

Figure 2: Example Hybrid Carrier Trailer

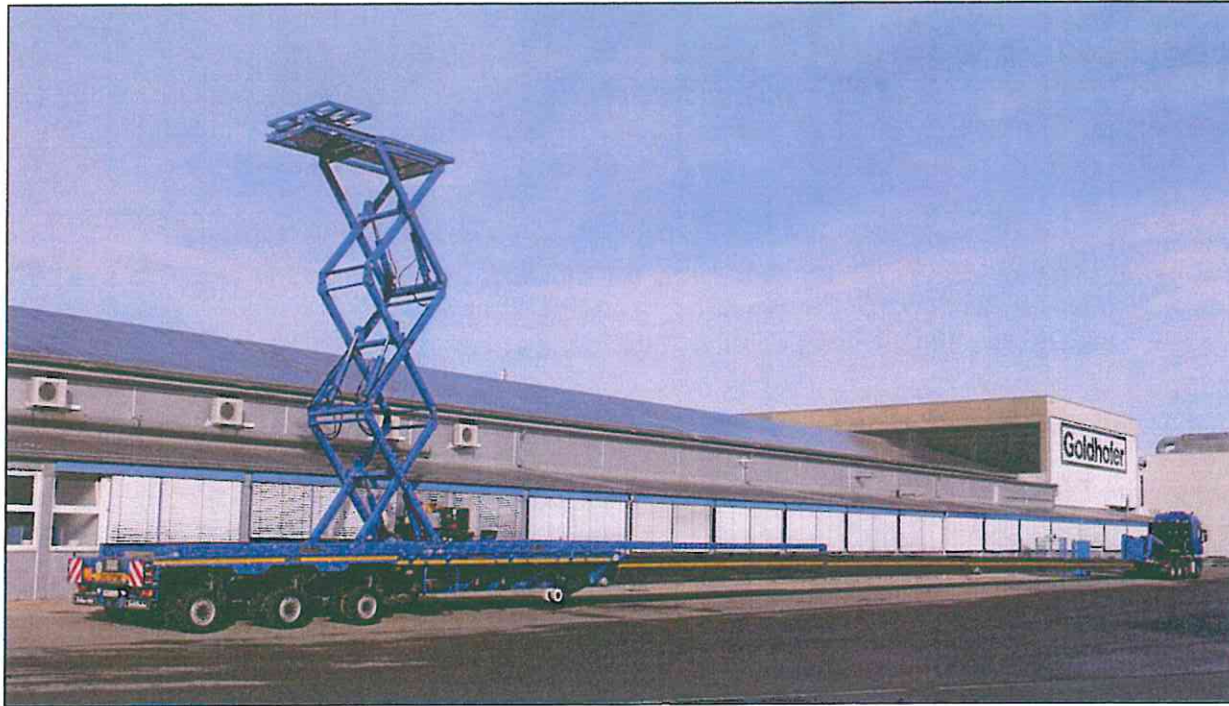


Figure 3: Tower Trailer



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3 Access Route Review

3.1 Access Route

A site survey has been undertaken from the Port of Dublin through to the proposed access junction. This survey was carried out by a two person team, using video capture along the entire length of the delivery route. Any areas considered to require a detailed assessment were marked with a Global Positioning Survey (GPS) waypoint and comments recorded detailing the nature of the concern.

Plans detailing the location of the GPS Points of Interest (POI) where further assessment has been carried out is contained within Appendix A

The proposed access route to site is as follows:

- Loads will depart Dublin Port and travel through the Dublin Port Tunnel to the M50;
- Loads will travel south on the M50;
- Loads will continue south on the N11 and M11;
- Loads will depart the M11 and continue west on the N30;
- Loads will continue north west on the N30 and onto the N80 to Bunclody;
- Loads will travel through Bunclody on the N80 before departing left onto the L2026 travelling west;
- Loads will continue west on the L2026 to the proposed site entrance.

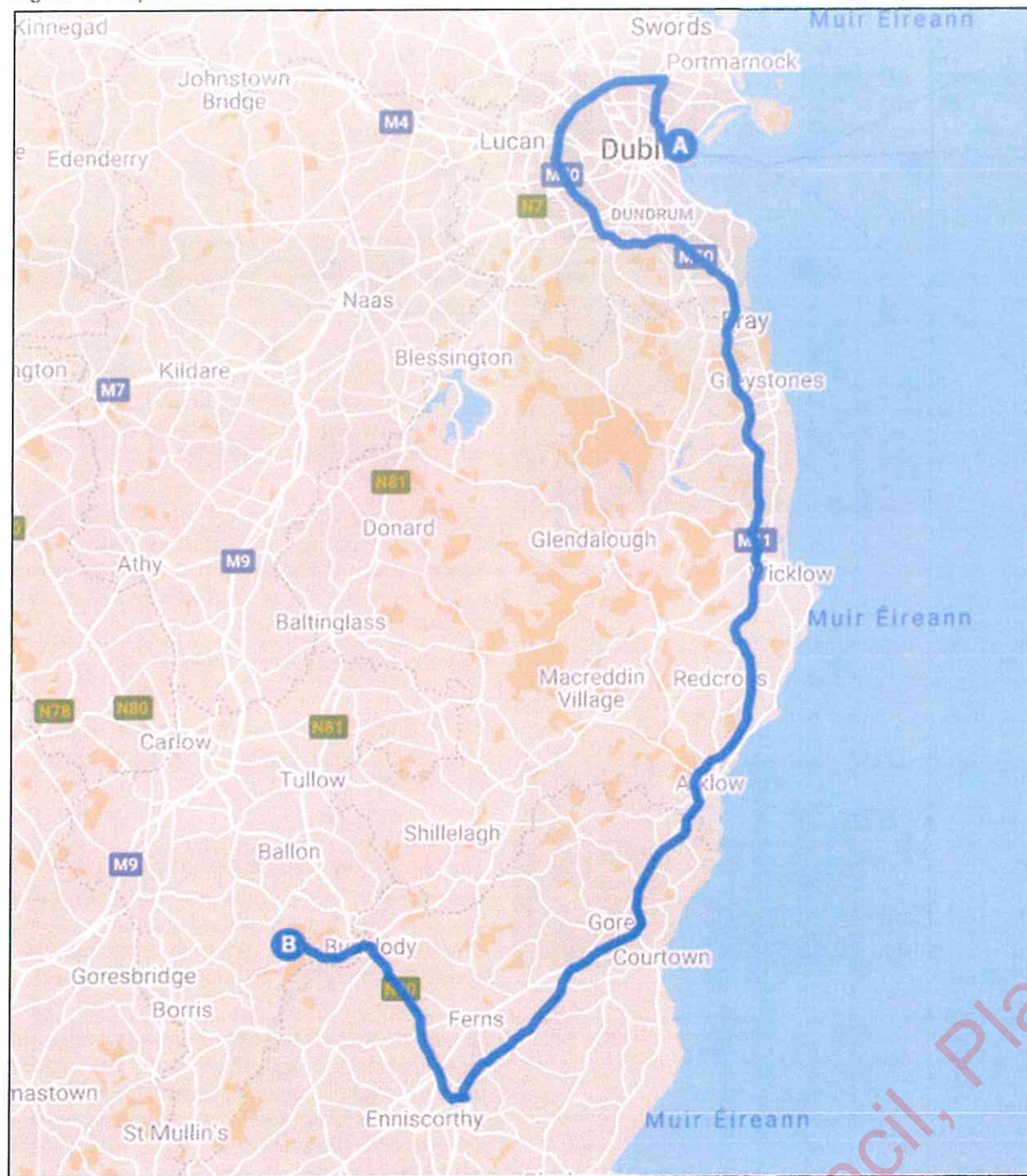
The proposed route is illustrated in Figure 6.

If the chosen haulier is not able to configure the tower and nacelle loads to meet the Dublin Port Tunnel 4.65m height restriction, an alternative egress route has been detailed in Table 2 which is as follows;

- Loads will depart Dublin Port and continue onto East Wall Street;
- Loads will turn right onto Alfie Byrne Road;
- Loads will turn left onto the R807;
- Loads will undertake a contraflow and turn right onto the R107;
- Loads will continue north on the R107 Malahide Road;
- Loads will turn left onto the R139 travelling west; and
- Loads will turn left onto the M50 and follow the route guidance outlined above.



Figure 4: Proposed Access Route



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3.2 Route Constraints

The constraints noted in the review are detailed in Table 2. These cover all constraints from the blade transfer point through to the site access junction.



Plans illustrating the location of the constraints and a detailed list of POI are provided in Appendix A.

Table 2: Constraint Points and Details

POI	Key Constraint	Details
1		<p>Quay Access Road</p> <p>The exact quay that loads would arrive on is not yet known. Once this has been established, a swept assessment from the quay onto the port exit road should be undertaken.</p> <p>It is likely that temporary accommodation works will be required to accommodate load movements. These and any associated agreements should be provided by the turbine supplier rather than Coillte.</p>
2		<p>New Port Access Road Bend 1</p> <p>Blade loads will turn right onto the new road alignment. Tower loads will proceed ahead at this location.</p> <p>Details of the new road alignment have been requested from Dublin Ports Authority to allow a swept path assessment to be undertaken however they have indicated that they are not available at this time. As such it has not been possible to complete a swept path assessment.</p> <p>Dublin Port Company have advised that the Land Operations department have not allowed project cargo (Turbine Components) in the port for 3-4 years due to their requirements for port storage and changes to the road network and road side furniture.</p> <p>It is recommended that early discussions regarding the port are undertaken by the turbine supplier and that responsibility for works within the port rests with them, rather than with Coillte.</p>






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POI	Key Constraint	Details
3		<p>New Port Access Road Bend 2</p> <p>Blade loads will turn left and will continue on the port exist road.</p> <p>No swept path assessment has been completed due to the unavailability of mapping. A swept path assessment should be completed once the new road alignment has been completed.</p>
4		<p>Port Access Road / M50 Slip Road</p> <p>Blade loads will turn right onto the M50 slip road and will join the M50.</p> <p>A swept path assessment at this location has been undertaken and indicates that loads will oversail the southern verge on approach to the junction where vegetation should be cleared and one signal pole should be removed.</p> <p>Loads will oversail into the northern verge on the inside of the bend where vegetation should be cleared and the proximity to the tunnel should be confirmed during the test run using laser height measuring equipment. Two road signs, one barrier and one signal pole should be removed.</p> <p>Land searches should be completed to ensure that third party land is not required.</p> <p>Swept path assessment SPA00 is included in Appendix B.</p>







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POI	Key Constraint	Details
5		<p>Dublin Port Tunnel</p> <p>Loads will proceed through the abnormal load toll gate and will enter the port tunnel. The blade loads must be set to ensure that they can pass under the 4.65m head height restriction within the tunnel.</p> <p>It is the responsibility of the haulier (once they have been selected) to confirm that they are able to configure the proposed tower loads to meet the tunnels 4.65m height restrictions.</p> <p>If this is not possible then POI 6 – 15 provide an alternative route along Malahide Road. No swept path assessments of the Malahide Road route have been completed as part of this project. The maximum dimensions of the proposed loads are thought to be suitable for delivery via the tunnel subject to confirmation by the haulier.</p> <p>If the Malahide Road route is to be used then swept path assessment should be completed to confirm the suitability of the route for the selected tower.</p>
6		<p>East Wall Road Junction – Tunnel Avoidance Route</p> <p>Tower and nacelle loads will pass through the junction from the port onto East Wall Road. The gates to the port will need to be opened and the escort vehicles should hold back traffic on the R131 arms of the junction.</p> <p>Loads would oversail the south footway and southern edge of the splitter island on approach to the junction.</p>
7		<p>East Wall Road / Alfie Byrne Rd Junction – Tunnel Avoidance Route</p> <p>Loads would turn right onto Alfie Byrne Road.</p> <p>Subject to the results of a swept path assessment it is assumed that loads will oversail the footway on the inside of the right turn where five bollards and one road sign should be removed.</p> <p>Loads will oversail the north western footway when exiting the bend.</p>







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POI	Key Constraint	Details
8		<p>Alfie Byrne Rd / Clontarf Road Junction – Tunnel Avoidance Route</p> <p>Loads will turn left onto Clontarf Road at the junction.</p> <p>Subject to the results of a swept path assessment it is assumed that loads will oversail the footway and verge on the inside of the left turn where one signal head and one road sign should be removed.</p>
9		<p>Clontarf Road / Marino Crescent Junction – Tunnel Avoidance Route</p> <p>Loads will turn right using a contraflow manoeuvre into Marino Crescent.</p> <p>Subject to the results of a swept path assessment it is assumed that loads will oversail the footway on the inside of the right turn where one road sign should be removed, and vegetation should be trimmed.</p>
10		<p>Malahide Road / Ardlea Road Roundabout – Tunnel Avoidance Route</p> <p>Loads will proceed ahead at the junction, continuing on the Malahide Road.</p> <p>Subject to the results of a swept path assessment it is assumed that loads will overrun and oversail the north western edge of the roundabout island where a load bearing surface should be laid and two chevron signs should be removed.</p> <p>Loads will oversail the north western verge on exit where one lighting column and two signal heads should be removed.</p>
11		<p>Malahide Road Overhead Utilities – Tunnel Avoidance Route</p> <p>A review of overhead utility line clearances should be undertaken with the statutory providers along the whole route.</p>







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POI	Key Constraint	Details
12		<p>Malahide Road / Priorswood Road Roundabout – Tunnel Avoidance Route</p> <p>Loads will proceed ahead at the junction, continuing on the Malahide Road.</p> <p>Subject to the results of a swept path assessment it is assumed that loads will oversail the western verge on approach to the roundabout where one road sign should be removed.</p>
13		<p>Malahide Road / R131 Junction – Tunnel Avoidance Route</p> <p>Loads will turn left onto the R131.</p> <p>Subject to the results of a swept path assessment it is assumed that loads will oversail the footway on the inside of the left turn where one signal head and one road sign should be removed.</p> <p>Loads will oversail the exit arm central reserve.</p>
14		<p>R131 / Clonshaugh Road Roundabout – Tunnel Avoidance Route</p> <p>Loads will proceed ahead onto the R131.</p> <p>Subject to the results of a swept path assessment it is assumed that loads will oversail the southern edge of the roundabout island.</p>
15		<p>R131 / M50 Interchange Roundabout – Tunnel Avoidance Route</p> <p>Loads will proceed left through the junction and will then join the M50 southbound.</p> <p>Loads will occupy all lanes however no physical mitigation is required.</p>



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POI	Key Constraint	Details
16	 	<p>M11 / N30 Interchange Roundabout</p> <p>Loads will diverge from the M11 and will turn onto the N30 at the interchange.</p> <p>A swept path assessment has been undertaken and indicates that loads will oversail the western edge of the off slip on approach to the roundabout where two road signs should be removed. The blade tip will oversail the safety barrier.</p> <p>Loads will oversail the eastern verge on the outside of the roundabout where five lighting columns and one road sign should be removed. A section of safety barrier will need to be removed.</p> <p>Loads will oversail the roundabout island itself where two sections of safety barrier may need to be removed subject to the test run results. Two road signs will also need to be removed on the R744 splitter island</p> <p>Swept path assessment SK01 is included in Appendix B.</p>
17		<p>N30 Low Overhead Utilities</p> <p>A review of overhead utility line clearances should be undertaken with the statutory providers along the whole route.</p> <p>A clear head height of 5m, plus flash over protection should be provided.</p>
18		<p>N30 / N11 Roundabout</p> <p>Loads will continue ahead onto the N80 northbound, taking the second exit.</p> <p>A swept path assessment has been undertaken and indicates that a new offline cut through should be created through the centre of the roundabout island. A load bearing surface should be laid and two chevron signs should be removed. The cut through option is considered to be the least expensive mitigation option at this location.</p> <p>Swept path assessment SK02 is included in Appendix B.</p>

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POI	Key Constraint	Details
19		<p>N80 Low Overhead Utilities</p> <p>A review of overhead utility line clearances should be undertaken at this location as multiple lines appear to be low.</p> <p>A clear head height of 5m, plus flash over protection should be provided.</p>
20		<p>N80 Overhanging Tree Canopy</p> <p>The tree canopy along the N80 and the rest of the access route should be trimmed to allow a clear 5.5m head height from the road surface.</p>
21		<p>N80 Low Overhead Utilities</p> <p>A review of overhead utility line clearances should be undertaken with the statutory providers along the whole route.</p> <p>A clear head height of 5m, plus flash over protection should be provided.</p>
22		<p>N80 Tombrick</p> <p>Loads will continue ahead on the N80 northbound.</p> <p>Loads will straddle the centre line through the section of road. Escorts should hold oncoming vehicles in advance of the section.</p>





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POI	Key Constraint	Details
23		<p>N80 South of Clohamon</p> <p>Loads will continue northbound on the N80.</p> <p>Loads will straddle the centre line through the section of road. Escorts should hold oncoming vehicles in advance of the section.</p> <p>A review of overhead utility line clearances should be undertaken with the statutory providers along the whole route.</p>
24		<p>N80 Entering Bunclody</p> <p>A clear head height of 5m, plus flash over protection should be provided.</p>
25		<p>N80 Entering Bunclody</p> <p>Loads will straddle the centre line through the section of road. Escorts should hold oncoming vehicles in advance of the section.</p>




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POI	Key Constraint	Details
26		<p>N80 Left Bend Bunclody</p> <p>Loads will continue through the tight left bend. Blades should be raised in the scissor lift in advance of this location. This can be undertaken at the road edge and would not need a separate third party transfer area.</p> <p>Loads will oversail to the eastern side of the carriageway over third party land before the bend where sign poles should be removed. The raised blade will then oversail the garage canopy.</p> <p>Loads will oversail the inside of the bend where parking should be suspended. They will also oversail the southern footway east of the mini roundabout, however no physical works are required.</p> <p>Loads will oversail the central reserve west of the mini roundabout where one traffic pole should be removed.</p> <p>All overhead utilities and obstructions would need to be removed to allow movement of the raised blade. Following this section, the blades can be lowered to reduce the need for overhead utility works.</p> <p>Swept path assessment SK03 is included in Appendix B.</p>
27		<p>N80 Bunclody</p> <p>The right hand pedestrian crossing pole should be removed to aid the movement of loads through the section.</p>





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POI	Key Constraint	Details
28		<p>N80 Bunclody</p> <p>Loads will negotiate a right / left bend within Bunclody.</p> <p>The vertical profile of the road at this location is pronounced and should be reviewed during the test run stage to ascertain if tar wedges will be required to prevent grounding.</p> <p>Loads will oversail the southern edge of the parking separation island however no physical mitigation is required.</p> <p>A traffic management plan should be developed to control the movement of the convoy through Bunclody town centre.</p>



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POI	Key Constraint	Details
29	 	<p>N80 / L2026 Junction</p> <p>Loads will perform a reversing manoeuvre into the Glanbia car park then proceed onto the L2026. Blades should be raised to allow this manoeuvre to occur.</p> <p>All vehicle parking will need to be banned in the vicinity of the junction and along Barker's Road.</p> <p>Loads will overrun and oversail the northern footway west of the car park junction where three signs, a lighting column with utility wires, low wall and tree should be removed. Ground to be lowered to carriageway level and a load bearing surface should be laid. Overhead utilities and obstacles will need to be removed.</p> <p>Loads will overrun and oversail the south western verge of the N80 where a load bearing surface should be laid, and one signal head and pole removed.</p> <p>Loads will overrun the splitter island where two bollards should be removed and a load bearing surface laid.</p> <p>Loads will overrun and oversail the eastern verge of the car park where a load bearing surface should be laid in overrun areas. The raised blade will oversail the buildings and existing utilities should be protected.</p> <p>Loads will overrun and oversail the southern verge on the L2026 where a load bearing surface should be laid.</p> <p>All overhead utilities and obstructions would need to be removed to allow movement of the raised blade.</p> <p>Once through the junction, the blade would be lowered to reduce the need for overhead utility line modifications.</p> <p>Swept path assessment SK04 is included in Appendix B. It is recommended that the assessment is revised on a wider area topographical survey to confirm all of the requirements, prior to loads commencing deliveries.</p>

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POI	Key Constraint	Details
30		<p>L2026 West of Bunclody</p> <p>Loads will continue south west through the left bend.</p> <p>A swept path assessment has been undertaken and indicates that loads will overrun and oversail the northern verge through the left bend where a load bearing surface should be laid and vegetation should be trimmed.</p> <p>Loads will oversail the inside of the left bend where vegetation should be trimmed. A stone wall and vegetation should be removed. Third party land is required.</p> <p>Loads will overrun and oversail the north western verge of the bend where a load bearing surface should be laid and vegetation should be trimmed.</p> <p>One road sign should be removed from the north western verge following the left bend.</p> <p>Swept path assessment SK05 is included in Appendix B.</p>
31		<p>L2026 West of Bunclody</p> <p>Loads will continue south west through the right bend.</p> <p>A swept path assessment has been undertaken and indicates that a minor oversail of the northern verge through the right bend will be required.</p> <p>Swept path assessment SK06 is included in Appendix B.</p>
32		<p>L2026 Barkers Road</p> <p>The vertical profile of the road at this location is pronounced and should be reviewed during the test run stage to ascertain if tar wedges will be required to prevent grounding.</p>






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POI	Key Constraint	Details
33		<p>L2026 Barkers Road</p> <p>Loads will continue south west on the road.</p> <p>A topographical survey should be completed to ensure that the road cross fall is within the tolerances allowed.</p>
34		<p>L2026 East of Ballymurtagh</p> <p>Loads will continue south west on the L2026.</p> <p>The vertical profile of the road at this location is pronounced and should be reviewed during the test run stage to ascertain if tar wedges will be required to prevent grounding.</p> <p>Loads will occupy the entire carriageway width through the section and oversail the verges where vegetation should be trimmed.</p>
35		<p>L2026 East of Ballymurtagh</p> <p>The road needs to be swept clean to assist with traction due to the gradient at this location.</p>
36		<p>L2026 Entering Ballymurtagh</p> <p>Loads will continue through the right bend.</p> <p>Loads will occupy the entire carriageway width through the section and oversail the verges where vegetation should be trimmed.</p>





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POI	Key Constraint	Details
37		<p>L2026 Ballymurtagh</p> <p>Loads will continue through the right bend.</p> <p>It is recommended that a structural assessment of the bridge is completed.</p> <p>It is recommended that the chicane buildouts are removed and replaced with load bearing surfaces to aid load movements. Four traffic bollards should be removed.</p>
38		<p>L2026 West of Ballymurtagh</p> <p>Loads will continue west through Ballymurtagh.</p> <p>The road will need to be widened to 4.5m minimum in order to meet manufacturer standards. Due to land falling away to the south into a private dwelling, it will be necessary for the widening to be provided to the north and third party land may be required. The existing drain will need to be culverted.</p> <p>Coillte could potentially seek dispensation from the turbine supplier to not widen the road through this section however enlarged oversail areas will be still required.</p>
39		<p>L2026 West of Ballymurtagh</p> <p>The vertical profile of the road at this location is pronounced and should be reviewed during the test run stage to ascertain if tar wedges will be required to prevent grounding.</p>





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POI	Key Constraint	Details
40		<p>L2026 West of Ballymurtagh</p> <p>The vertical profile of the road at this location is pronounced and should be reviewed during the test run stage to ascertain if tar wedges will be required to prevent grounding.</p>
41		<p>L2026 East of Kilbranish</p> <p>Loads will continue west through the right bend on the L2026.</p> <p>There is evidence of previous mitigation works at this location.</p> <p><i>Available OSI mapping does not identify the road edge. It only identifies the assumed fence lines through the section. Swept path assessments have been completed however they are only able to identify the requirements for third party land and exact mitigation measures.</i></p> <p><i>The OSI mapping and aerial images do not match at this location and it is not possible to identify all mitigations in the drawings</i></p> <p>A swept path assessment has been undertaken and shows that loads will overrun and oversail both verges of the carriageway requiring street furniture and trees to be removed. Areas of load bearing surface will be required and reprofiling works may be required.</p> <p>Swept path assessment SK07 is included in Appendix B.</p>






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POI	Key Constraint	Details
42		<p>L2026 East of Kilbranish</p> <p>Loads will continue west through a series of bends on the L2026.</p> <p>All overhead utilities and obstructions will need to be removed.</p> <p><i>Available OSI mapping does not identify the road edge. It only identifies the assumed fence lines through the section. Swept path assessment have been completed however they are only able to identify the requirements for third party land.</i></p> <p><i>The OSI mapping and aerial images do not match at this location and it is not possible to identify all mitigations in the drawings</i></p> <p>A swept path assessment has been undertaken and indicates that loads will overrun and oversail the northern verge through the junction where a load bearing surface should be laid and the verge should be reprofiled. One telegraph pole should be removed.</p> <p>Loads will oversail the southern verge where the trees vegetation should be removed.</p> <p>Swept path assessment SK08 is included in Appendix B.</p>
43		<p>L2026 Kilbranish</p> <p>Loads will continue west through the left bend on the L2026.</p> <p>A swept path assessment has been undertaken and indicates that loads will oversail the northern verges on approach to the bend where third party land will be required. Three road signs and one telegraph pole should be removed along with vegetation.</p> <p>Loads will overrun and oversail into third party land on the inside of the left bend where a load bearing surface should be laid and trees and vegetation should be removed.</p> <p>Swept path assessment SK09 is included in Appendix B.</p>




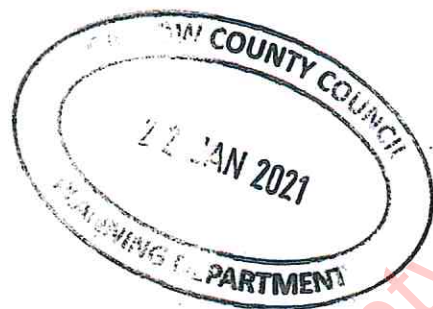
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POI	Key Constraint	Details
44		<p>L2026 Kilbranish</p> <p>Loads will continue west through the right bend on the L2026.</p> <p>A swept path assessment has been undertaken and indicates that loads will overrun and oversail to the south of the road through the right bend where a load bearing surface should be laid and trees and vegetation should be cleared. The drain should be culverted.</p> <p>Loads will oversail verge on the inside of the right bend where trees and vegetation should be cleared. One telegraph pole should be removed.</p> <p>It is recommended that a land search is completed to confirm if third party land is required on both sides of the road.</p> <p>Swept path assessment SK10 is included in Appendix B.</p>
45		<p>L2026 Kilbranish</p> <p>Loads will continue west through the right bend on the L2026.</p> <p>A swept path assessment has been undertaken and indicates that loads will oversail both verges through the section. A land search is required to confirm the extent of adopted boundary through the section.</p> <p>Swept path assessment SK11 is included in Appendix B.</p>
46		<p>L2026 West of Kilbranish</p> <p>Loads will continue west through the right bend on the L2026.</p> <p>Loads will oversail the eastern verge on the inside of the right bend where the vegetation should be cleared.</p>






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POI	Key Constraint	Details
47		<p>L2026 West of Kilbranish</p> <p>Loads will continue west through the left bend on the L2026.</p> <p><i>Available OSI mapping does not identify the road edge. It only identifies the assumed fence lines through the section. Swept path assessment have been completed however they are only able to identify the requirements for third party land.</i></p> <p><i>The OSI mapping and aerial images do not match at this location and it is not possible to identify all mitigations in the drawings</i></p> <p>A swept path assessment has been undertaken and indicates that loads will overrun and oversail the northern verge through the left bend where a load bearing surface should be laid and the drain culverted. Vegetation should be cleared.</p> <p>Loads will continue to oversail the northern verge where vegetation should be cleared.</p> <p>Swept path assessment SK12 is included in Appendix B.</p>





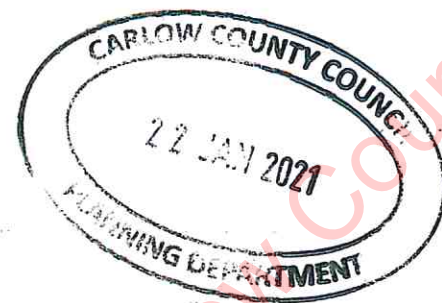
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POI	Key Constraint	Details
48, 49		<p>L2026 West of Kilbranish and Proposed Site Entrance Left Bend</p> <p>Loads will continue west through the right bend on the L2026.</p> <p><i>Available OSI mapping does not identify the road edge. It only identifies the assumed fence lines through the section. Swept path assessment have been completed however they are only able to identify the requirements for third party land.</i></p> <p>A swept path assessment has been undertaken and indicates that loads will oversail the northern verge throughout the initial right bend. Vegetation should be cleared and trees trimmed.</p> <p>Loads will oversail the southern verge through the following left bend at the proposed site entrance where vegetation should be cleared. Loads will overrun and oversail the land on either side of the existing site entrance where load bearing surface should be laid. The drainage channel should be culverted and vegetation should be cleared.</p> <p>Swept path assessment SK13 is included in Appendix B.</p>
50		<p>L2026 West of the Proposed Site Entrance</p> <p>It is recommended that a structural review is carried out to ensure that the bridge structure is suitable for the proposed loads.</p> <p>The road will need to be widened to 4.5m running width to meet manufacturer standards. The drainage ditch will need to be culverted.</p>
51		<p>L2026 West of the Proposed Site Entrance</p> <p>The road surface was noted to be undulating and uneven at this point. It is recommended that the surface is reviewed to provide a smooth running surface.</p> <p>The road will need to be widened to 4.5m running width to meet manufacturer standards.</p>



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POI	Key Constraint	Details
52		<p>Proposed Turning Point</p> <p>It is proposed that loads will utilise land to the north and the existing hard standing area to undertake a reverse turn due to the constraints involved in turning right into the existing site entrance.</p> <p>A new turning head is required and the existing hardstanding area will need to be enlarged and the land will need to be reprofiled to create a flat turning area for the raised blade loads. Third party land will be required and trees and vegetation should be cleared.</p> <p>A three point turn is complex for this size of load and ample time and traffic management must be put in place to assist loads turning.</p> <p>Swept path assessment SK14 is included in Appendix B.</p>
49		<p>Proposed Site Entrance</p> <p>Loads will turn left into the existing site junction which should be upgraded to meet the turbine manufacturer and local authority standards.</p> <p><i>Available OSI mapping does not identify the road edge. It only identifies the assumed fence lines through the section. Swept path assessment have been completed however they are only able to identify the requirements for third party land.</i></p> <p><i>The OSI mapping and aerial images do not match at this location and it is not possible to identify all mitigations in the drawings</i></p> <p>Swept path assessment SK15 is included in Appendix B.</p>



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3.3 Swept Path Assessment Results and Summary

The detailed swept path drawings for the locations assessed are provided in Appendix B for review. The drawings in Appendix B illustrate tracking undertaken for the worst caseloads at each location.

The colours illustrated on the swept paths are:

- Grey / Black – OS / Topographical Base Mapping;
- Green – Vehicle body outline (body swept path);
- Red – Tracked pathway of the wheels (wheel swept path); and
- Purple – The over-sail tracked path of the load where it encroaches out with the trailer (load swept path).



Where mitigation works are required, the extents of over-run and over-sail areas are illustrated on the swept path drawings.

Please note that where assessments have been undertaken using Ordnance Survey (OS) base mapping, there can be errors in this data source.

Where provided by the client, topographical data has been utilised. Please note that PF cannot accept liability for errors on the data source, be that OS base mapping or client supplied data.

3.4 Weight Review

As per our agreed scope a weight review has not been undertaken. We would strongly advise that a weight review is completed at a later stage to ensure that there are no further constraints on the proposed route.

3.5 Summary Issues

It is strongly suggested that following a review of the RSR, Coillte should undertake the following prior to the delivery of the first abnormal loads, to ensure load and road user safety:

- Commission further topographical survey mapping to allow the identified swept path assessments to be completed;
- A revised review of axle loading on structures along the entire access route with the various road agencies is undertaken immediately prior to the loads being transported in case of last minute changes to structures;
- A review of clear heights with utility providers and the transport agencies along the route to ensure that there is sufficient space to allow for loads plus sufficient flashover protection (to electrical installations);
- That any verge vegetation and tree canopies which may foul loads is trimmed prior to loads moving;
- That a review of potential roadworks and or closures is undertaken once the delivery schedule is established in draft form;
- That a test run is completed to confirm the route and review any vertical clearance issues; and

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- That a condition survey is undertaken to ascertain the extents of road defects prior to loads commencing to protect the developer from spurious damage claims.



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4 Summary

4.1 Summary of Access Review

PF has been commissioned by Coillte to prepare a Route Survey Report to examine the issues associated with the transport of ALL turbine components to the development site from the Port of Dublin.

This report identifies the key points and issues associated with the proposed routes and outlines the issues that will need to be considered for successful delivery of components.

The access review has been based upon a worst case of a Vestas V136 blade and Nordex top tower and has been undertaken. A scissor lift hybrid trailer has been used to reduce the need for mitigation in the constrained sections of the route.

The report is presented for consideration to Coillte. Various road modifications and interventions are required to successfully access the site. If these are assessed, approved and undertaken, access to the consented wind farm site is considered feasible.

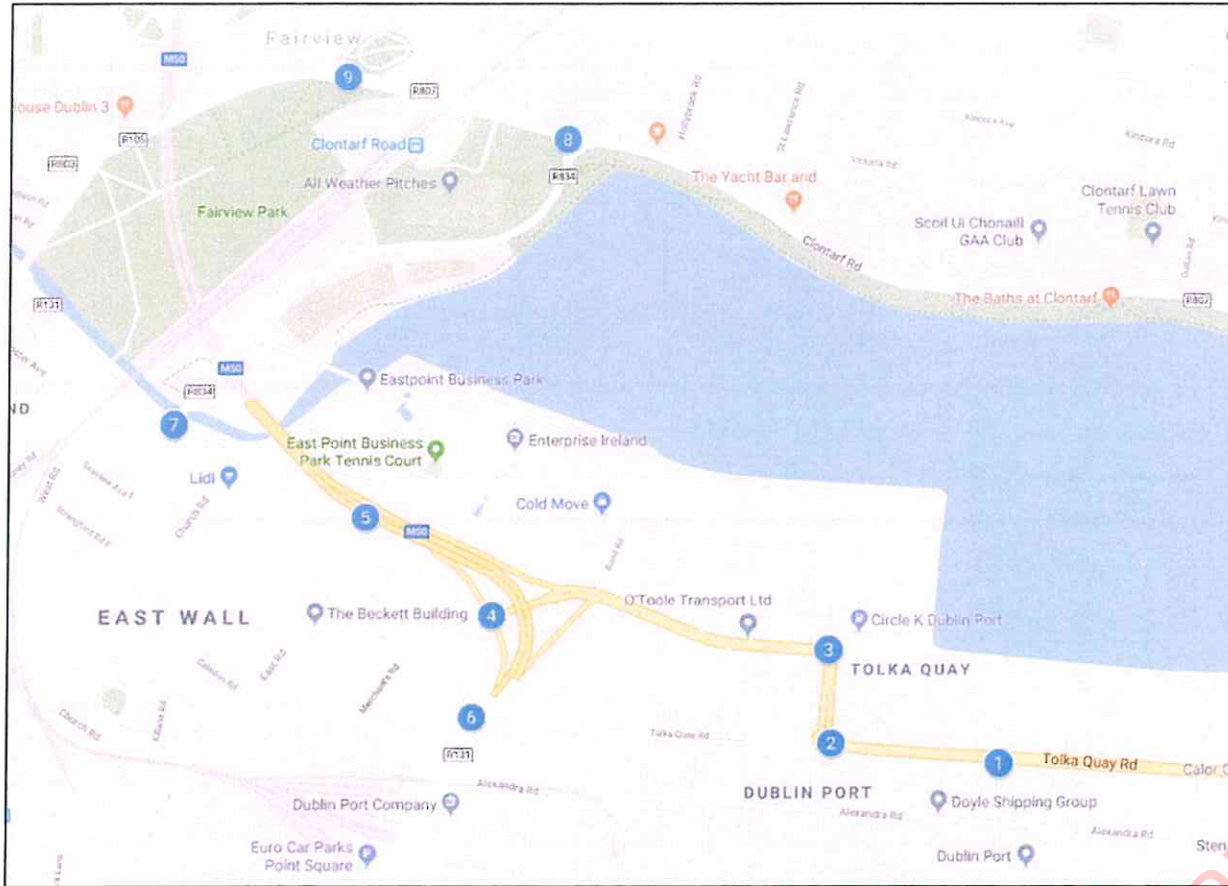
4.2 Further Actions

The following actions are recommended to pursue the transport and access issues further:

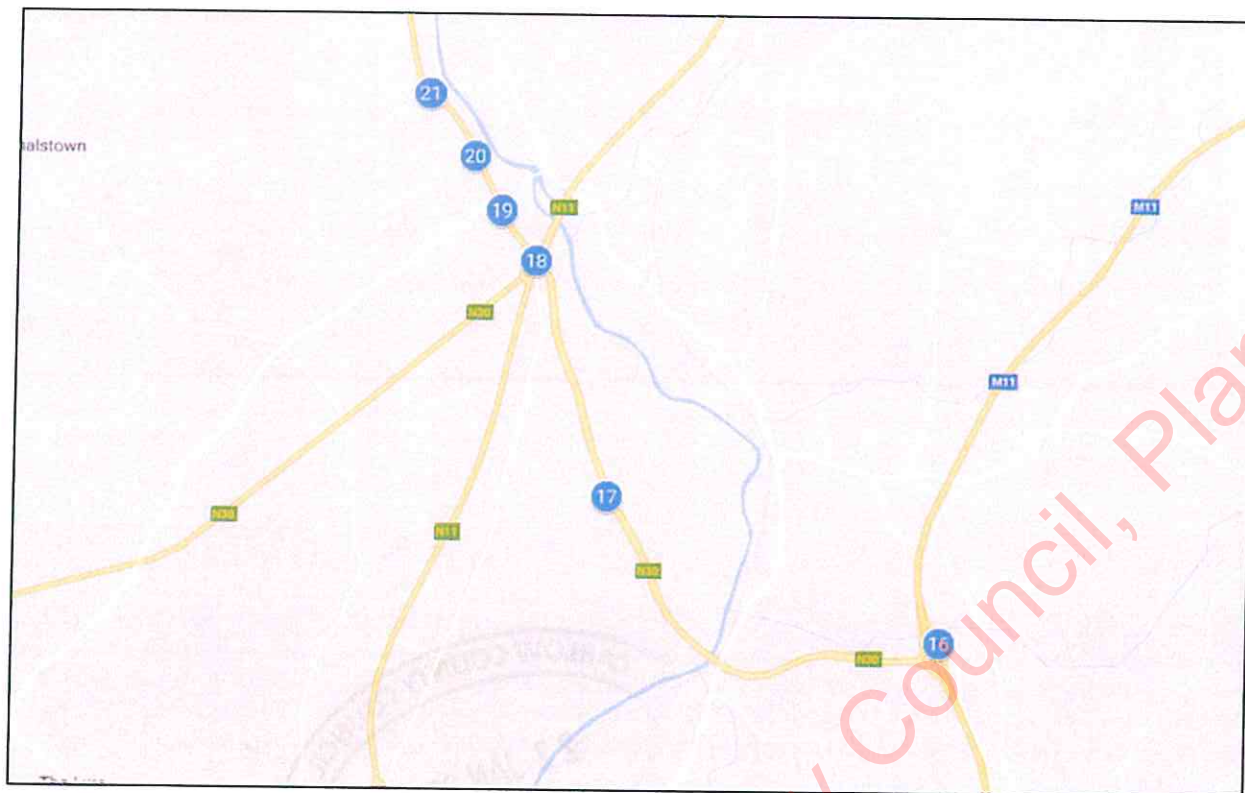
- Obtain the necessary land rights;
- Commission further topographical mapping and repeat required swept path assessments;
- Prepare detailed design proposals to help inform consultee / licence discussions;
- Undertake discussions with the affected utility providers and roads agencies;
- Obtain the necessary statutory licences to enable the mitigation measures; and
- Develop a detailed operational Transport Management Plan to assist in transporting the proposed loads.



Appendix A Points of Interest Locations



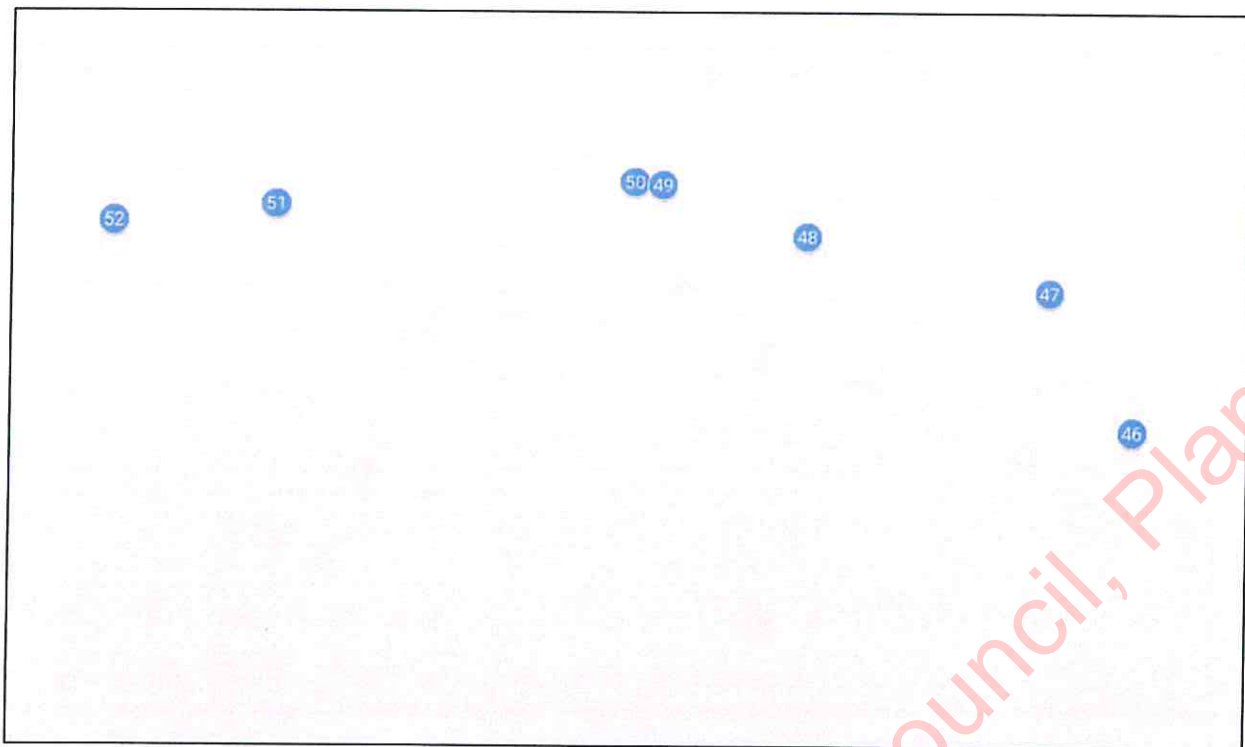
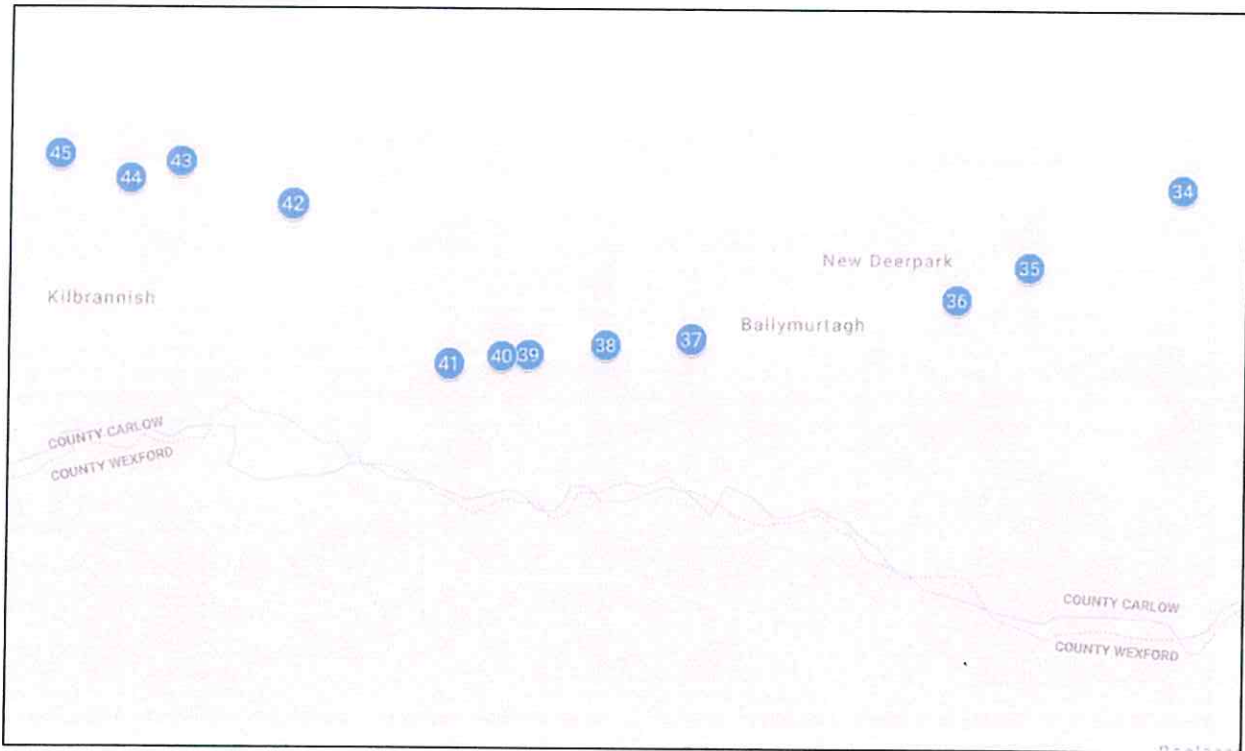
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Appendix B
Swept Path Assessment



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Blade



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Project
 Croaghaun Wind Farm

Drawn	JS	21/06/2020	Scale	1:500 @ A3
Designed	GB	21/06/2020	File No.	V136 Croaghaun SPA v1.dwg
Checked	GB	21/06/2020	Drawing Status	Draft
Point of Interest	SK00		4	

Client: Coillte

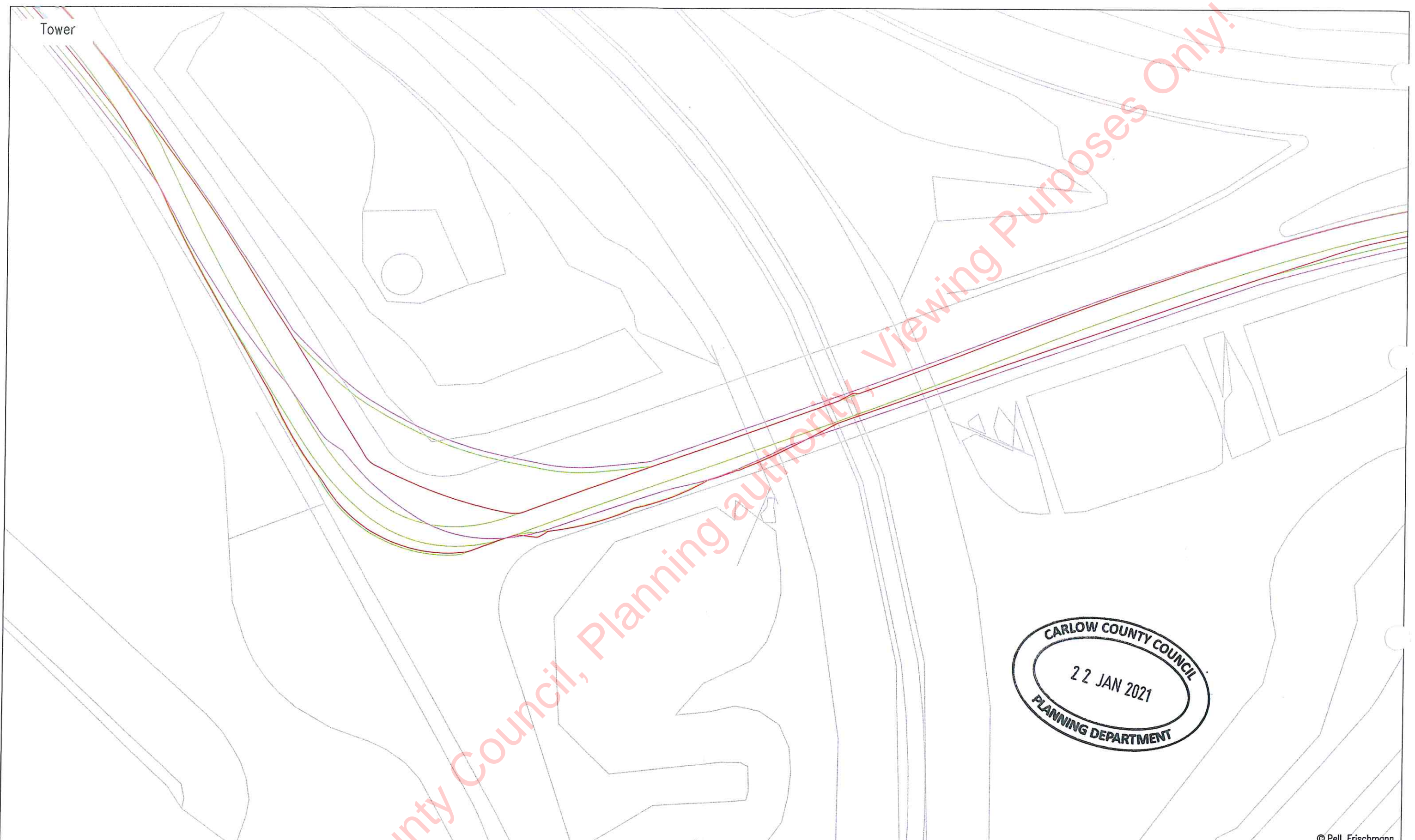
Key						
	Wheel SPA	Body SPA	Load SPA	Indicative	Over-run	Over-sail

Drawing Title
 Vestas V136 & Nordex N149 Top Tower

SPA Location
 Port Access Road / M50 Slip Road

Notes:	Revision
1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.	1

Tower



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Project
 Croaghaun Wind Farm

Drawing Title
 Vestas V136 & Nordex N149 Top Tower

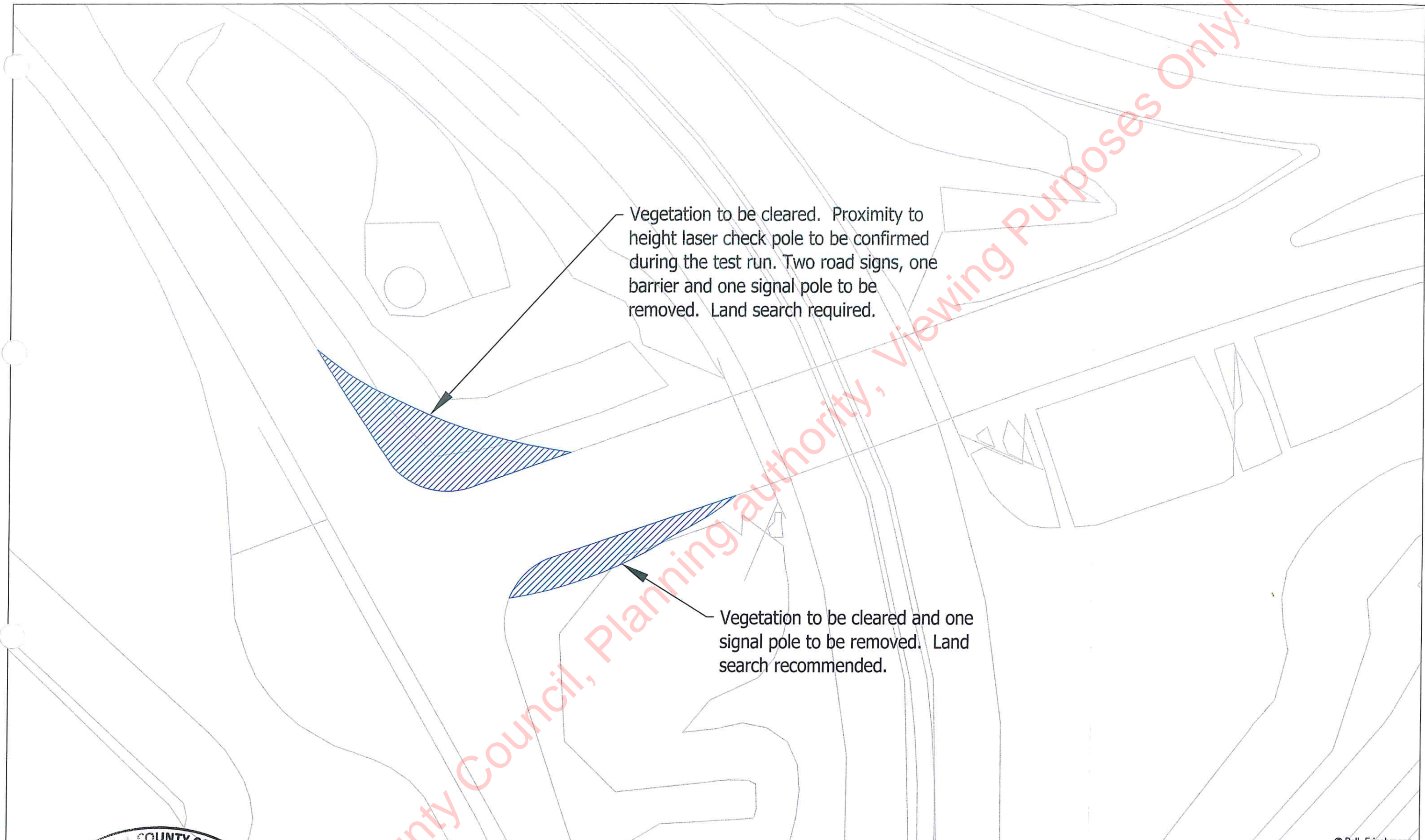
SPA Location
 Port Access Road / M50 Slip Road



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Checked	GB	21/06/2020	Drawing Status Draft
Point of Interest		4	

Drawing No. SK00A	Notes: 1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.	Revision 1
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Client Coillte	Key
	Wheel SPA Body SPA Load SPA Indicative Over-run Over-sail



Vegetation to be cleared. Proximity to height laser check pole to be confirmed during the test run. Two road signs, one barrier and one signal pole to be removed. Land search required.

Vegetation to be cleared and one signal pole to be removed. Land search recommended.

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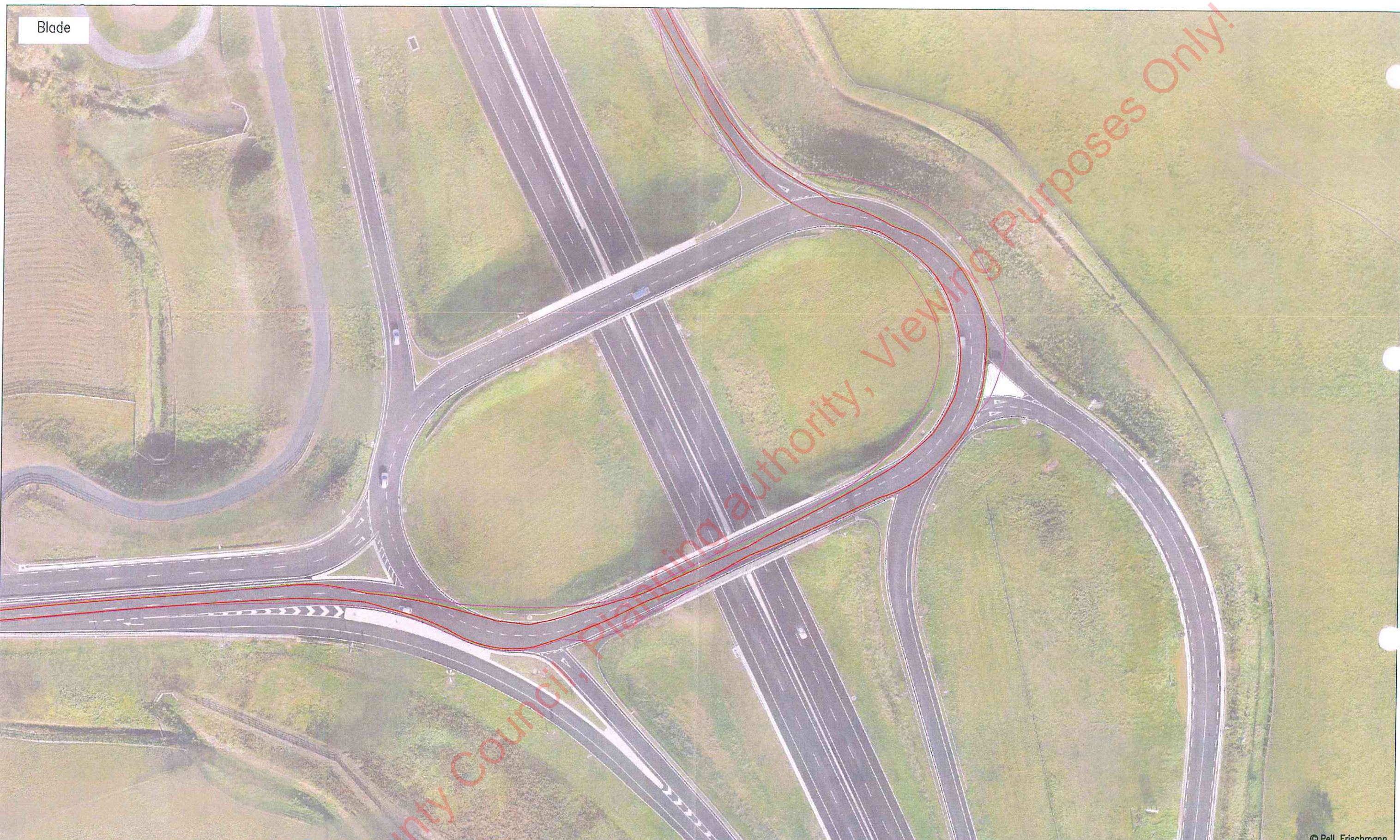
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Client	Project					
Key	Wheel SPA	Body SPA	Load SPA	Indicative	Over-run	Over-sail

Project		Croaghaun Wind Farm	
Drawing Title		Vestas V136 & Nordex N149 Top Tower	
SPA Location		Port Access Road / M50 Slip Road	

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Point of Interest		4		
Drawing No.	SK00B	Notes:	Revision	
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Client

Coillte

Key



Project

Croaghaun Wind Farm

Drawing Title

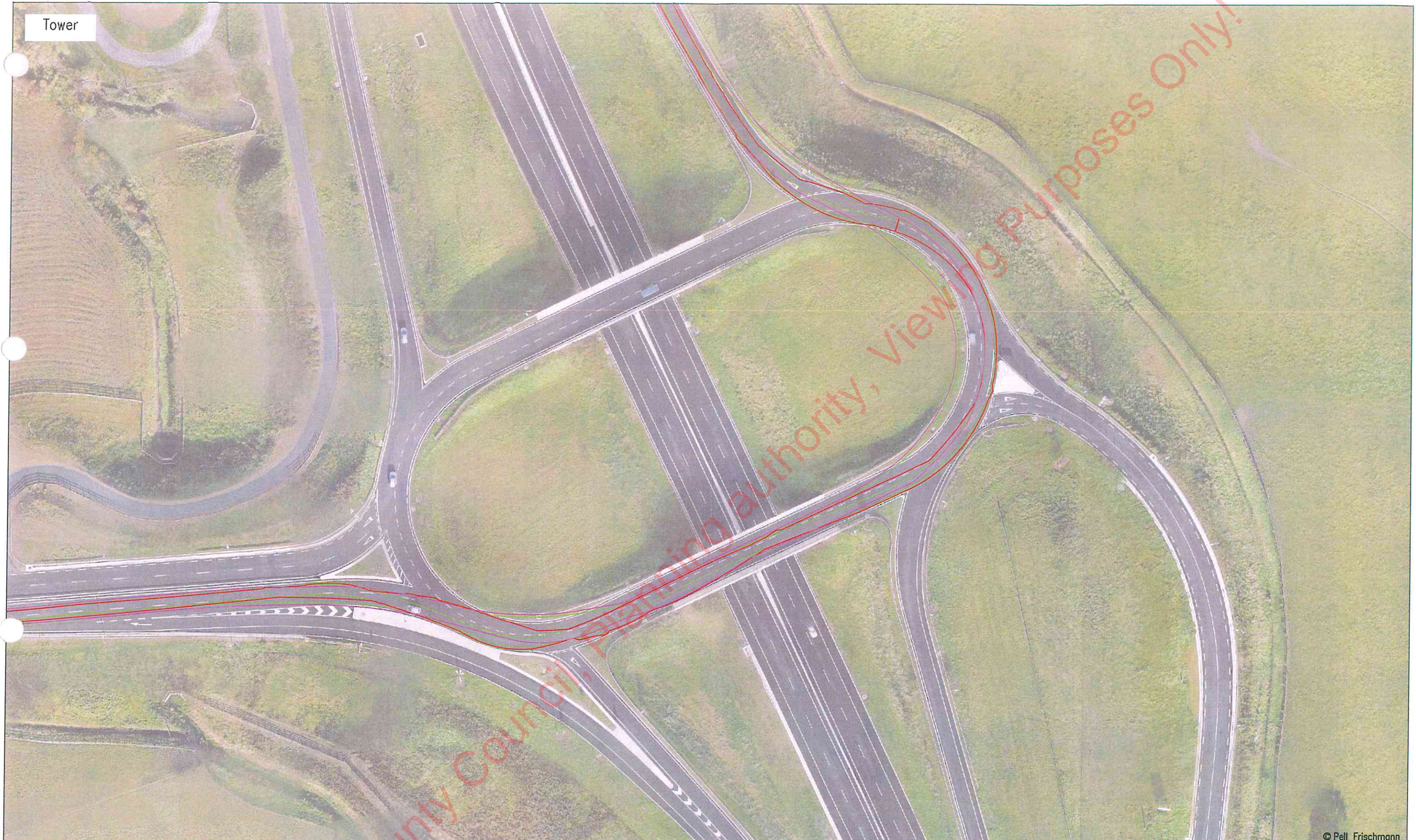
Vestas V136 & Nordex N149 Top Tower

SPA Location

M11 / N30 Interchange Roundabout

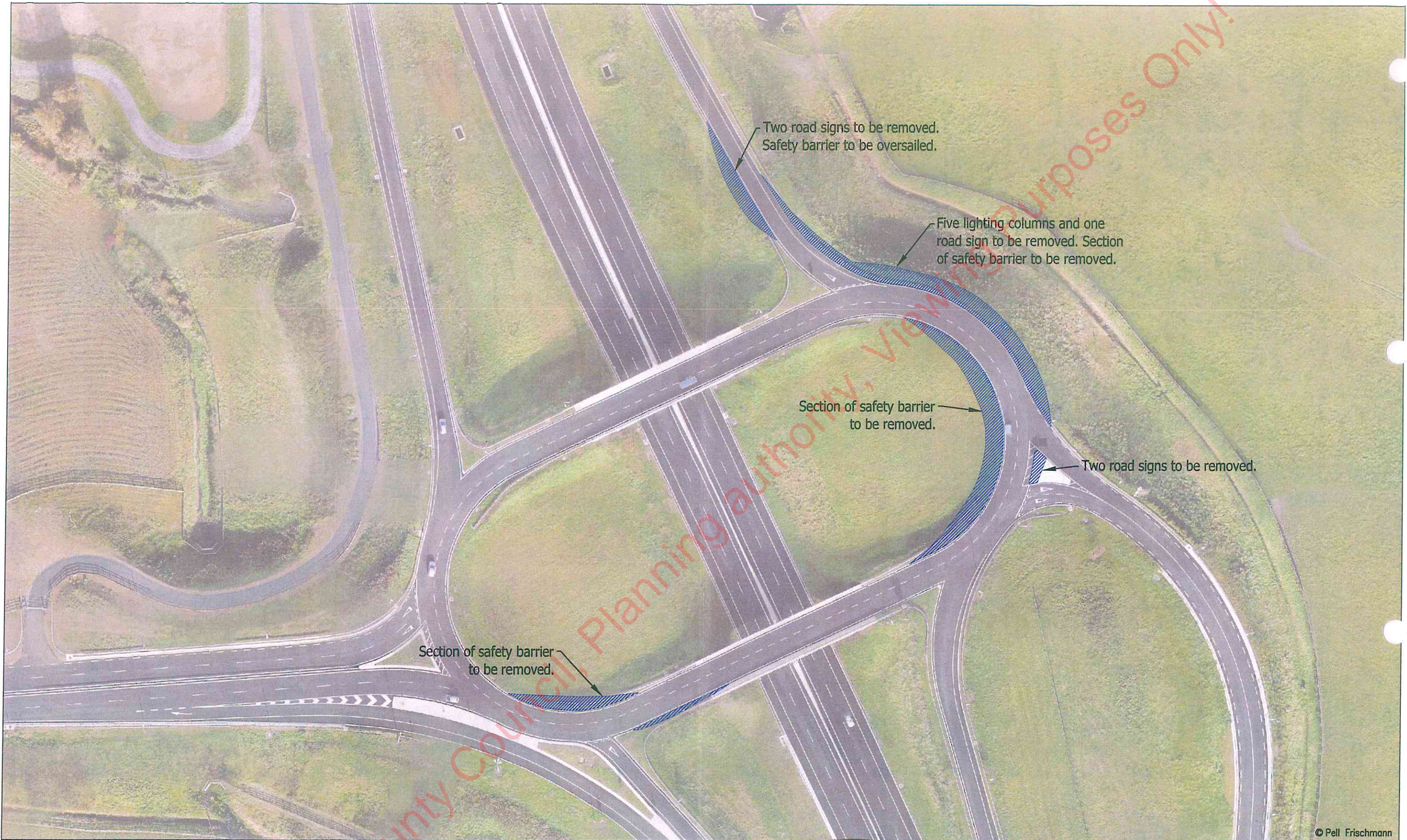


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Checked	GB	21/06/2020	Point of Interest	16
Drawing No.	SK01	Notes:		Revision
		1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.		1



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	Drawing Title	Vestas V136 & Nordex N149 Top Tower	Designed	GB	21/06/2020	File No.	V136 Croaghaun SPA v1.dwg
Key	SPA Location	M11 / N30 Interchange Roundabout	Checked	GB	21/06/2020	Drawing Status	Draft
Wheel SPA Body SPA Lodd SPA Indicative Over-run Over-sail			Point of Interest		16	Revision	1
			Drawing No.	SK01A	Notes:	1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.	



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Client: **Coillte**

Key
 Wheel SPA Body SPA Load SPA Indicative Over-run Over-sail

Project: **Croaghaun Wind Farm**

Drawing Title: **Vestas V136 & Nordex N149 Top Tower**

SPA Location: **M11 / N30 Interchange Roundabout**

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Drawn	JS	21/06/2020	Scale	1:1000 @ A3
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Point of Interest	16		Drawing No.	SK01B
Notes:			Revision	
1. All mitigation is subject to confirmation through a test run.			1	
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Blade



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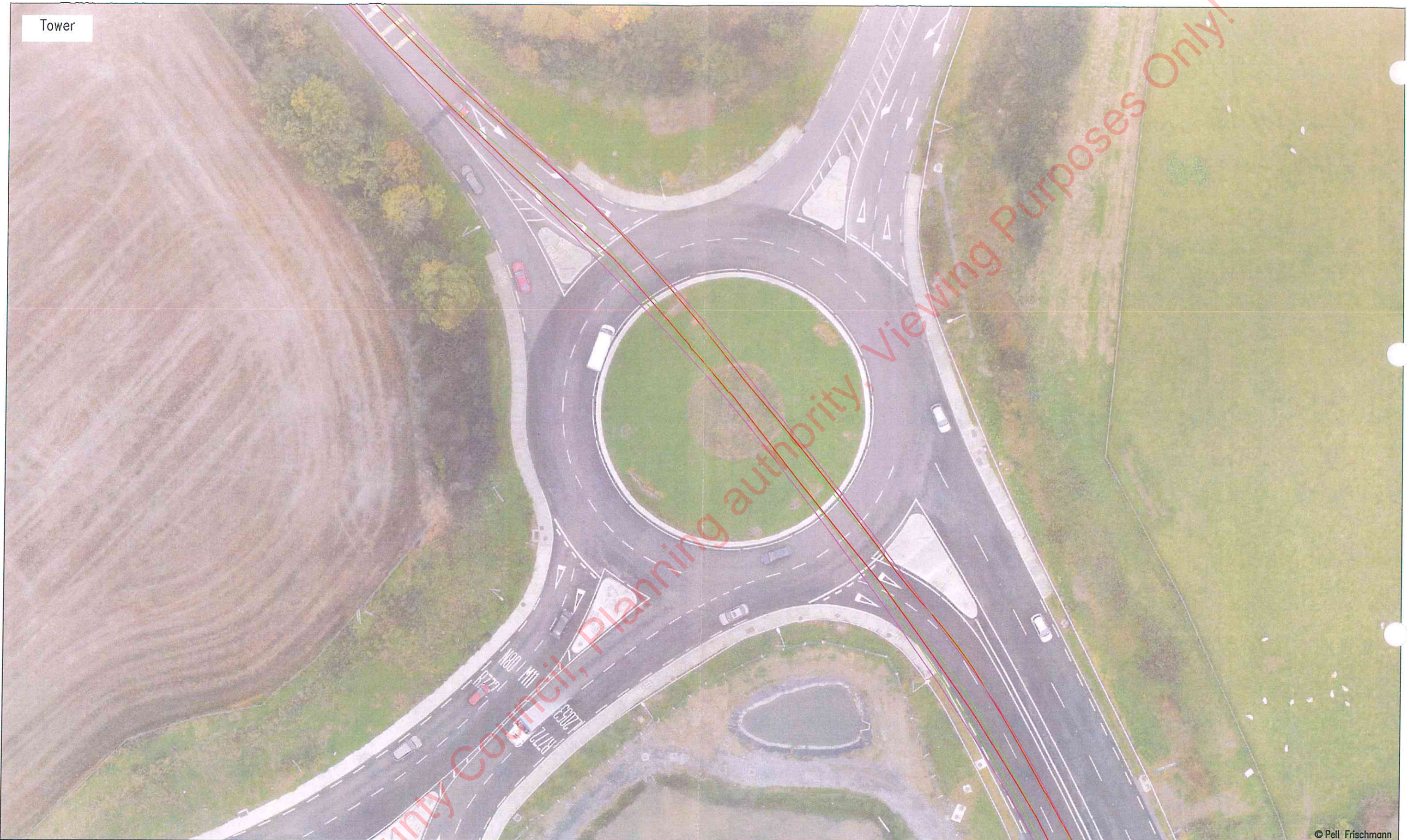
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Client	Coillte
Key	Wheel SPA Body SPA Load SPA Indicative Over-run Over-sail

Project	Croaghaun Wind Farm
Drawing Title	Vestas V136 & Nordex N149 Top Tower
SPA Location	N30 / N11 Roundabout







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Checked	GB	21/06/2020	Drawing Status	Draft
Point of Interest	18		Revision	1
Drawing No.	SK02		Notes:	
			1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.	

Tower



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Client	Coillte					
Key						
	Wheel SPA	Body SPA	Load SPA	Indicative	Over-run	Over-sail

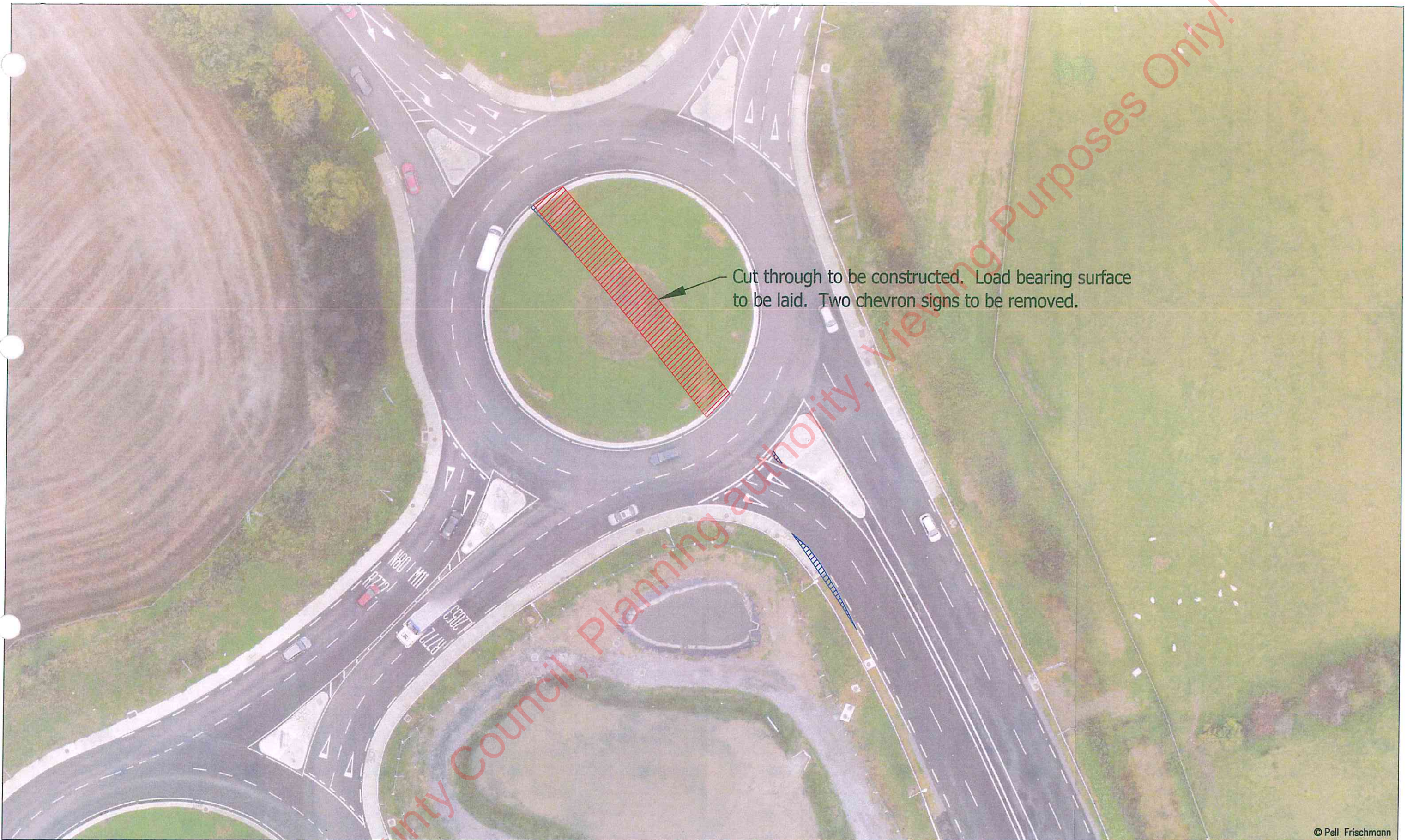
Project
 Croaghaun Wind Farm

Drawing Title
 Vestas V136 & Nordex N149 Top Tower

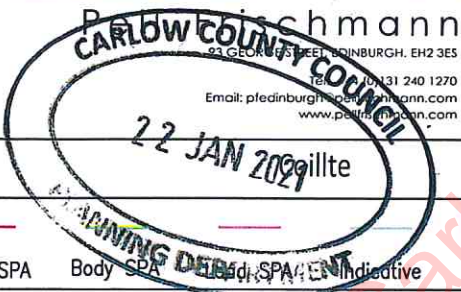
SPA Location
 N30 / N11 Roundabout



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Point of Interest		18		
Drawing No.	SK02A	Notes:		Revision
		1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.		1



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Project Croaghaun Wind Farm	Name JS	Date 21/06/2020	Scale 1:500 @ A3
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Drawing Title Vestas V136 & Nordex N149 Top Tower	Checked GB	Date 21/06/2020	Drawing Status Draft
SPA Location N30 / N11 Roundabout	Point of Interest 18	Drawing No. SK02B	Revision 1

Key Wheel SPA Body SPA End SPA Indicative Over-run Over-sail		
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Notes:
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10m Raised Blade



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Project

Croaghaun Wind Farm



	Name	Date	Scale
Drawn	JS	21/06/2020	1:500 @ A3
Designed	GB	21/06/2020	File No. V136 Croaghaun SPA v1.dwg
Checked	GB	21/06/2020	Drawing Status Draft
Point of Interest		26	

Client **Coillte**

Drawing Title

Vestas V136 & Nordex N149 Top Tower

Drawing No.	Notes:	Revision
SK03	1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.	1

Key						
	Wheel SPA	Body SPA	Load SPA	Indicative	Over-run	Over-sail

SPA Location

N80 Left Bend Bunclody



Tower

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Project	Croaghaun Wind Farm
Drawing Title	Vestas V136 & Nordex N149 Top Tower
SPA Location	N80 Left Bend Bunclody

Drawn	JS	21/06/2020	Scale	1:500 @ A3
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Point of Interest	26		Revision	1
Drawing No.	SK03A		Notes:	1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.

Key		Wheel SPA		Body SPA		Over-run		Over-sail
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Client: **Coillte**

Key

Wheel SPA	Body SPA	Load SPA	Indicative	Over-run	Over-sail

Project: **Croaghoun Wind Farm**

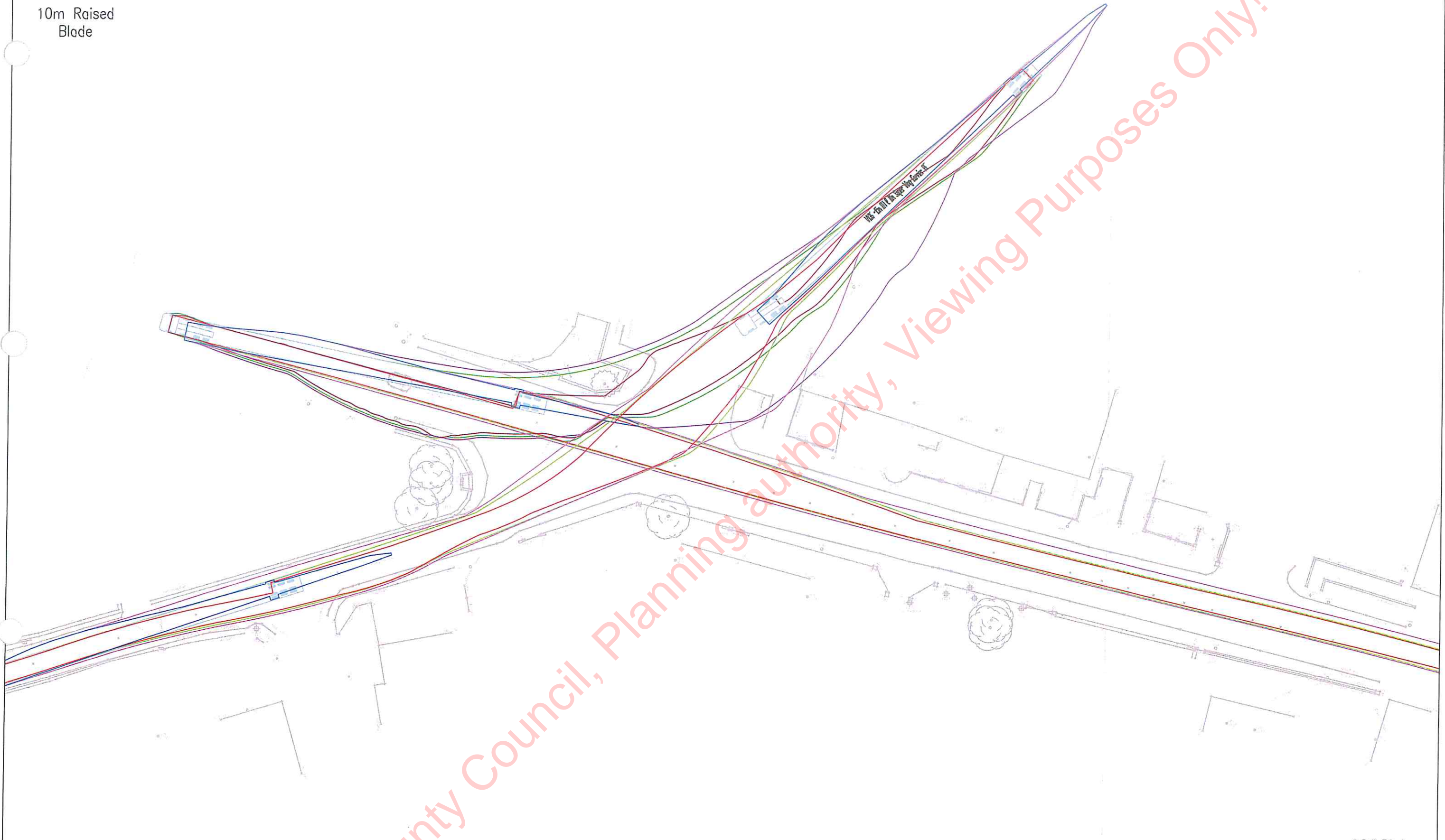
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SPA Location: **N80 Left Bend Bunclody**

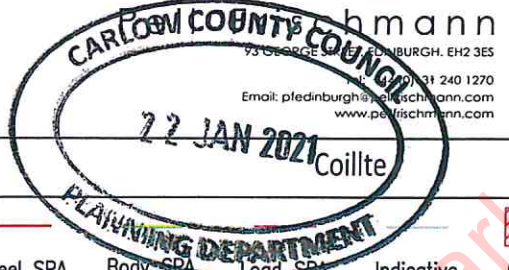
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Point of Interest	26		Revision: 1
Drawing No. SK03B	Notes: 1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.		

10m Raised
Blade



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Client: **Coillte**

Key
 Wheel SPA Body SPA Load SPA Indicative Over-run Over-sail

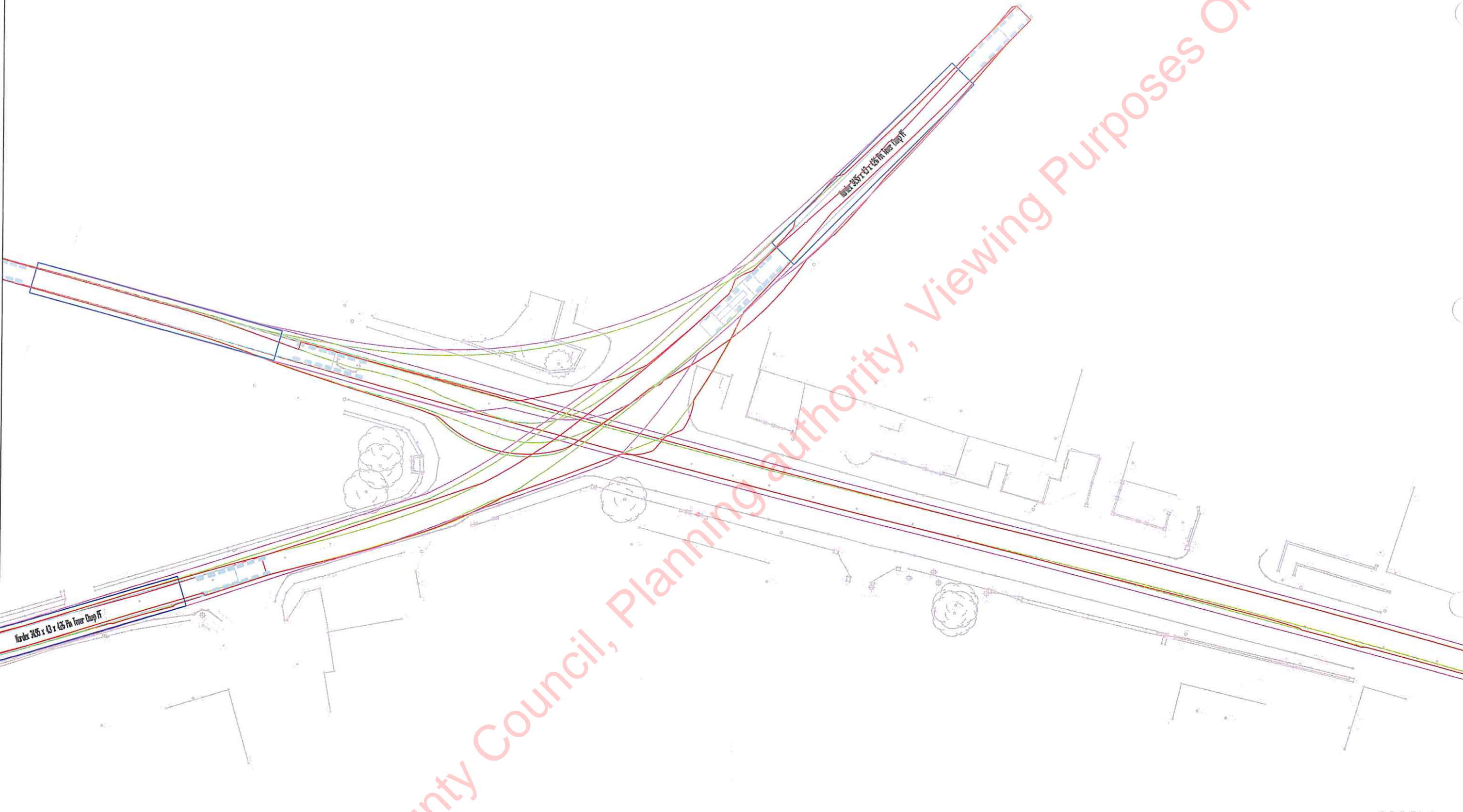
Project
Croaghaun Wind Farm

Drawing Title
Vestas V136 & Nordex N149 Top Tower

SPA Location
N80 / L2026 Junction

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Point of Interest		29	
Drawing No.	Notes:		Revision
SK04	1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.		1

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Client	Coilte					
Key						
	Wheel SPA	Body SPA	Load SPA	Indicative	Over-run	Over-sail

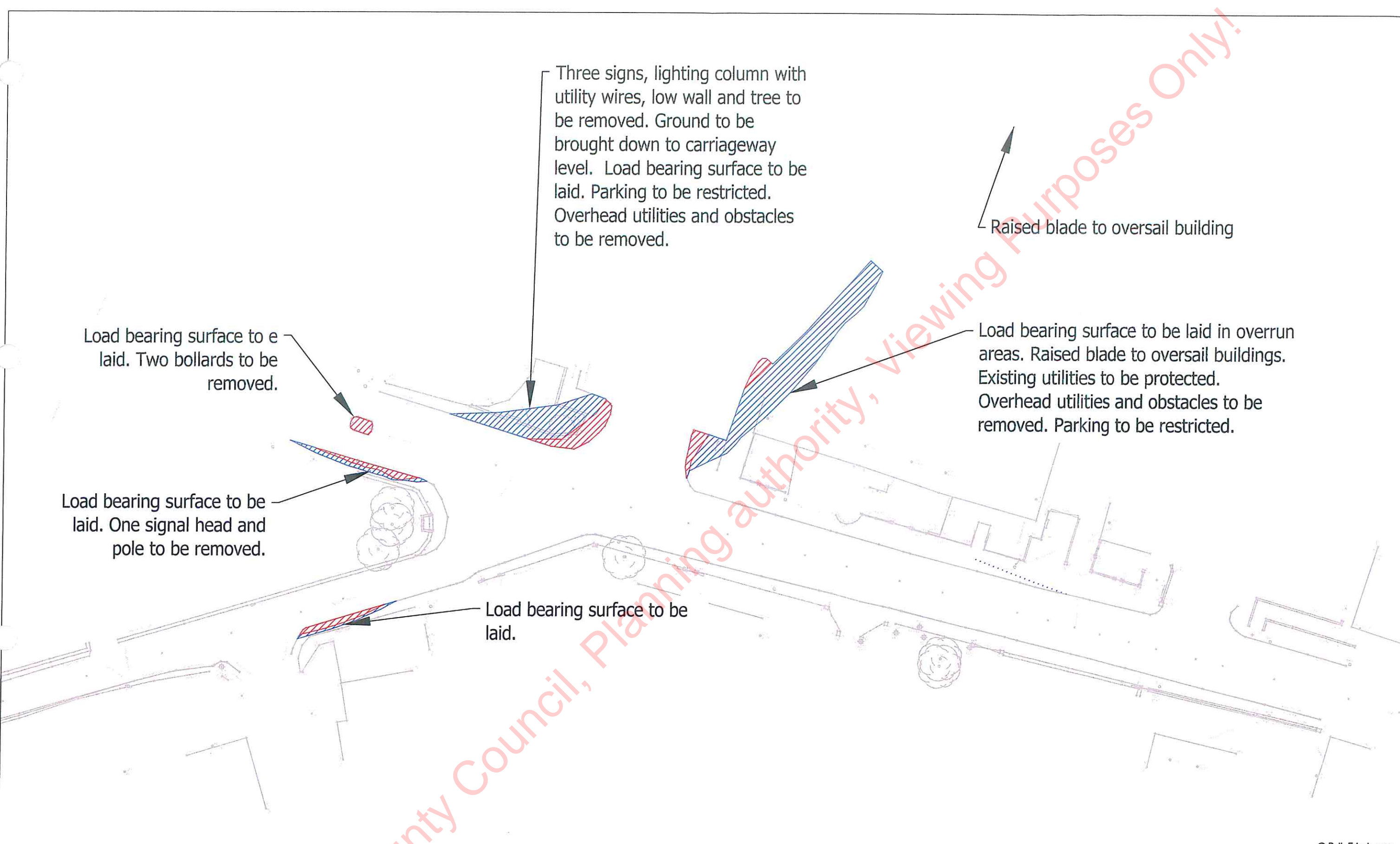
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Drawing Title
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SPA Location
 N80 / L2026 Junction



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Checked	GB	21/06/2020	Drawing Status	Draft
Point of Interest		29		
Drawing No.	SK04A			Revision
Notes:				1
1. All mitigation is subject to confirmation through a test run.				
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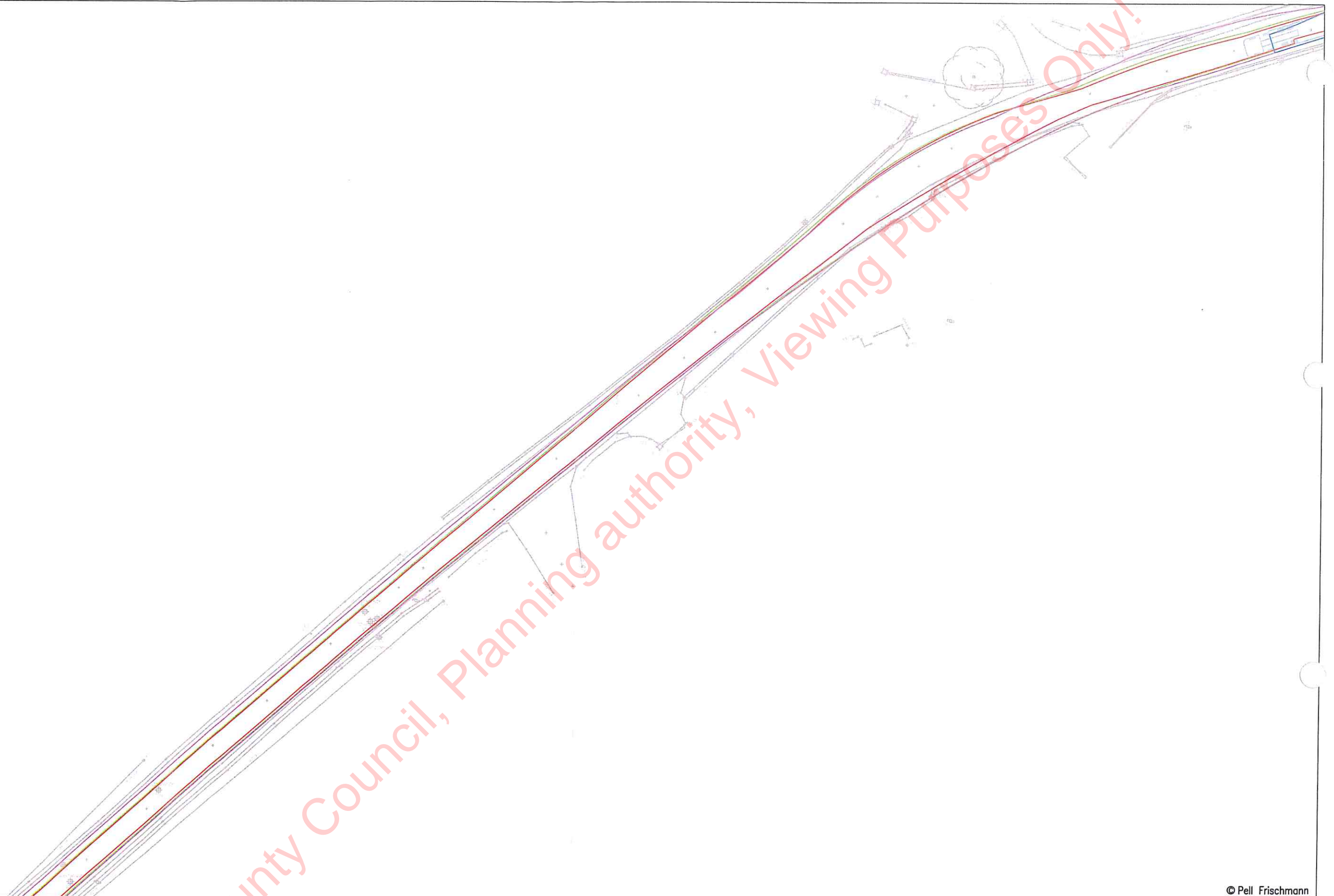
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Project	Croaghaun Wind Farm		
Drawing Title	Vestas V136 & Nordex N149 Top Tower		
SPA Location	N80 / L2026 Junction		

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Checked GB	21/06/2020	Point of Interest	29
Drawing No. SK04B	Notes:	Revision	
	1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.	1	

Key	Wheel SPA	Body SPA	Load SPA	Indicative	Over-run	Over-sail
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Blade

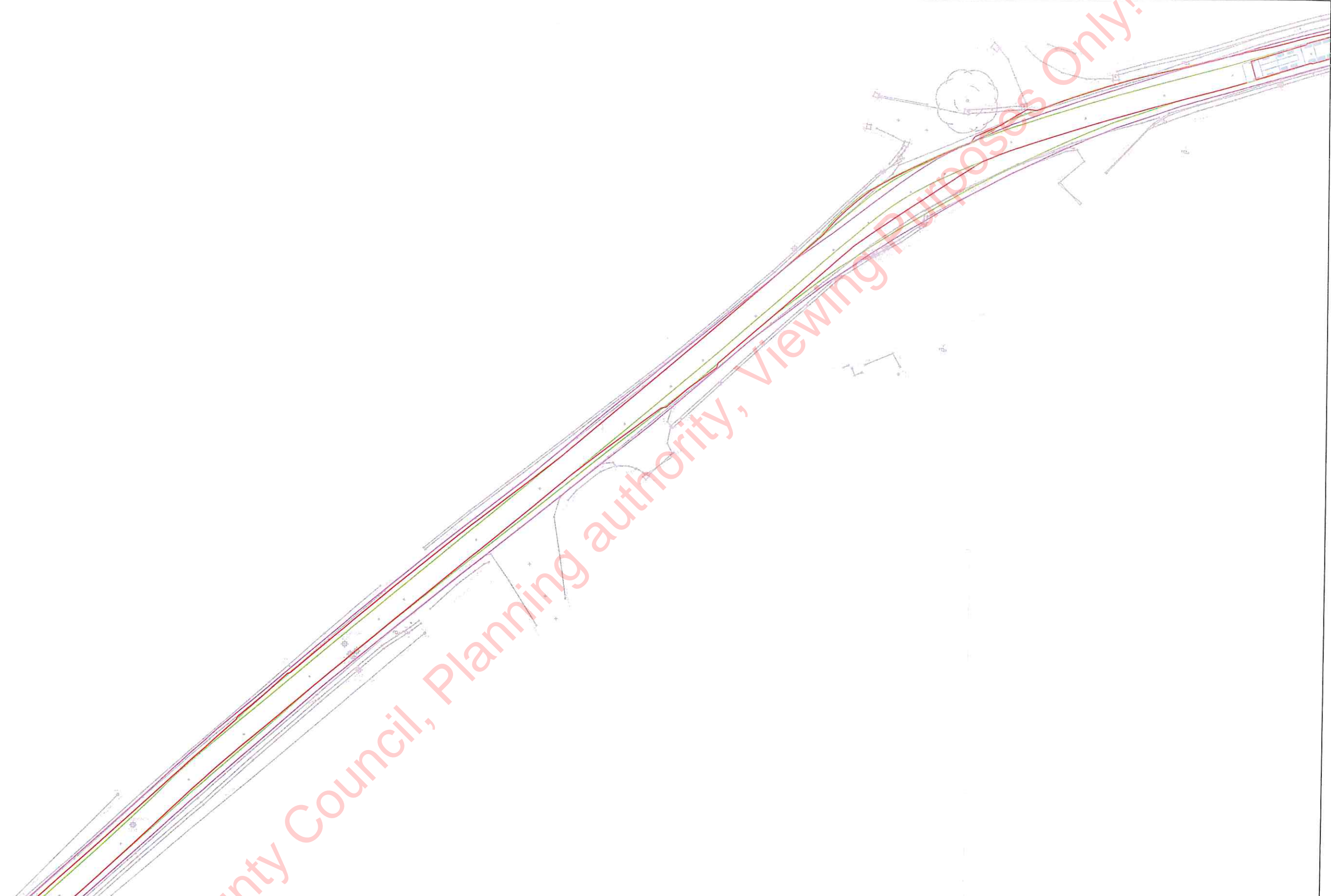


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Pell Frischmann 93 GEORGE STREET, EDINBURGH, EH2 3ES Tel: +44 (0)131 240 1270 Email: pfrinchmann@pellfrischmann.com www.pellfrischmann.com	Project Croaghaun Wind Farm	<table border="1"> <tr> <td></td> <td>Name</td> <td>Date</td> <td>Scale</td> </tr> <tr> <td>Drawn</td> <td>JS</td> <td>21/06/2020</td> <td>1:500 @ A3</td> </tr> <tr> <td>Designed</td> <td>GB</td> <td>21/06/2020</td> <td rowspan="2">File No. V136 Croaghaun SPA v1.dwg</td> </tr> <tr> <td>Checked</td> <td>GB</td> <td>21/06/2020</td> </tr> </table>		Name	Date	Scale	Drawn	JS	21/06/2020	1:500 @ A3	Designed	GB	21/06/2020	File No. V136 Croaghaun SPA v1.dwg	Checked	GB	21/06/2020
		Name	Date	Scale													
Drawn	JS	21/06/2020	1:500 @ A3														
Designed	GB	21/06/2020	File No. V136 Croaghaun SPA v1.dwg														
Checked	GB	21/06/2020															
Client Coillte	Drawing Title Vestas V136 & Nordex N149 Top Tower	<table border="1"> <tr> <td>Point of Interest</td> <td>30</td> <td rowspan="2">Drawing Status Draft</td> </tr> <tr> <td>Drawing No.</td> <td>SK05</td> </tr> </table>	Point of Interest	30	Drawing Status Draft	Drawing No.	SK05										
Point of Interest	30	Drawing Status Draft															
Drawing No.	SK05																
Key 	SPA Location L2026 West of Bunclody	<table border="1"> <tr> <td>Notes:</td> <td>Revision</td> </tr> <tr> <td> 1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only. </td> <td>1</td> </tr> </table>	Notes:	Revision	1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.	1											
Notes:	Revision																
1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.	1																



Tower



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Project

Croaghaun Wind Farm

	Name	Date	Scale
Drawn	JS	21/06/2020	1:500 @ A3
Designed	GB	21/06/2020	File No. V136 Croaghaun SPA v1.dwg
Checked	GB	21/06/2020	
Point of Interest			Drawing Status
30			Draft

Drawing Title

Vestas V136 & Nordex N149 Top Tower

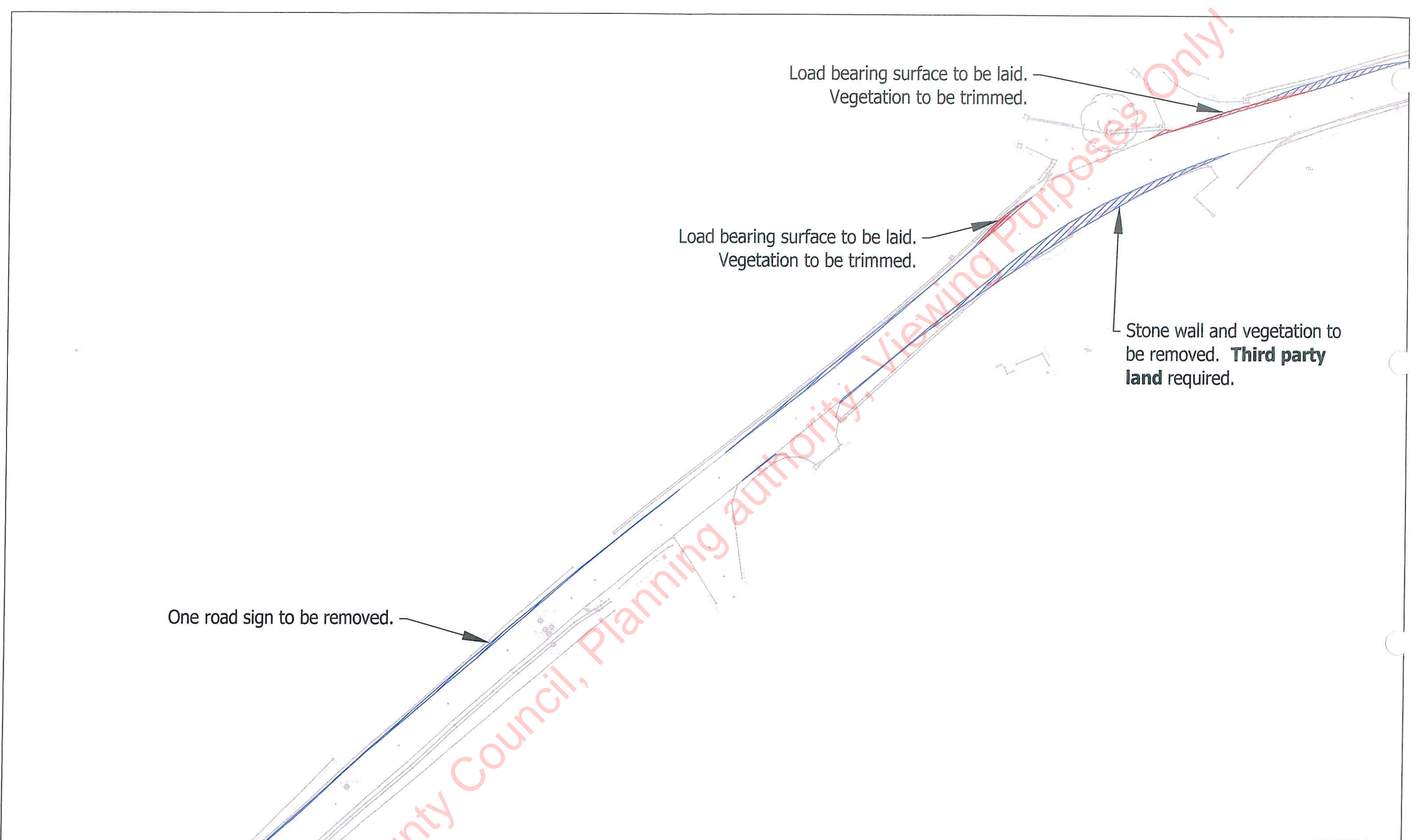
SPA Location

L2026 West of Bunclody

Client: Coillte

Key	Color	Description
Wheel SPA	Red	
Body SPA	Green	
Load SPA	Blue	
Indicative	Black	
Over-run	Red Hatched	
Over-sail	Blue Hatched	

Drawing No.	Notes	Revision
SK05A	1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.	1



One road sign to be removed.

Load bearing surface to be laid.
Vegetation to be trimmed.

Load bearing surface to be laid.
Vegetation to be trimmed.

Stone wall and vegetation to be removed. **Third party land** required.

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Project
Croaghaun Wind Farm

Drawing Title
Vestas V136 & Nordex N149 Top Tower

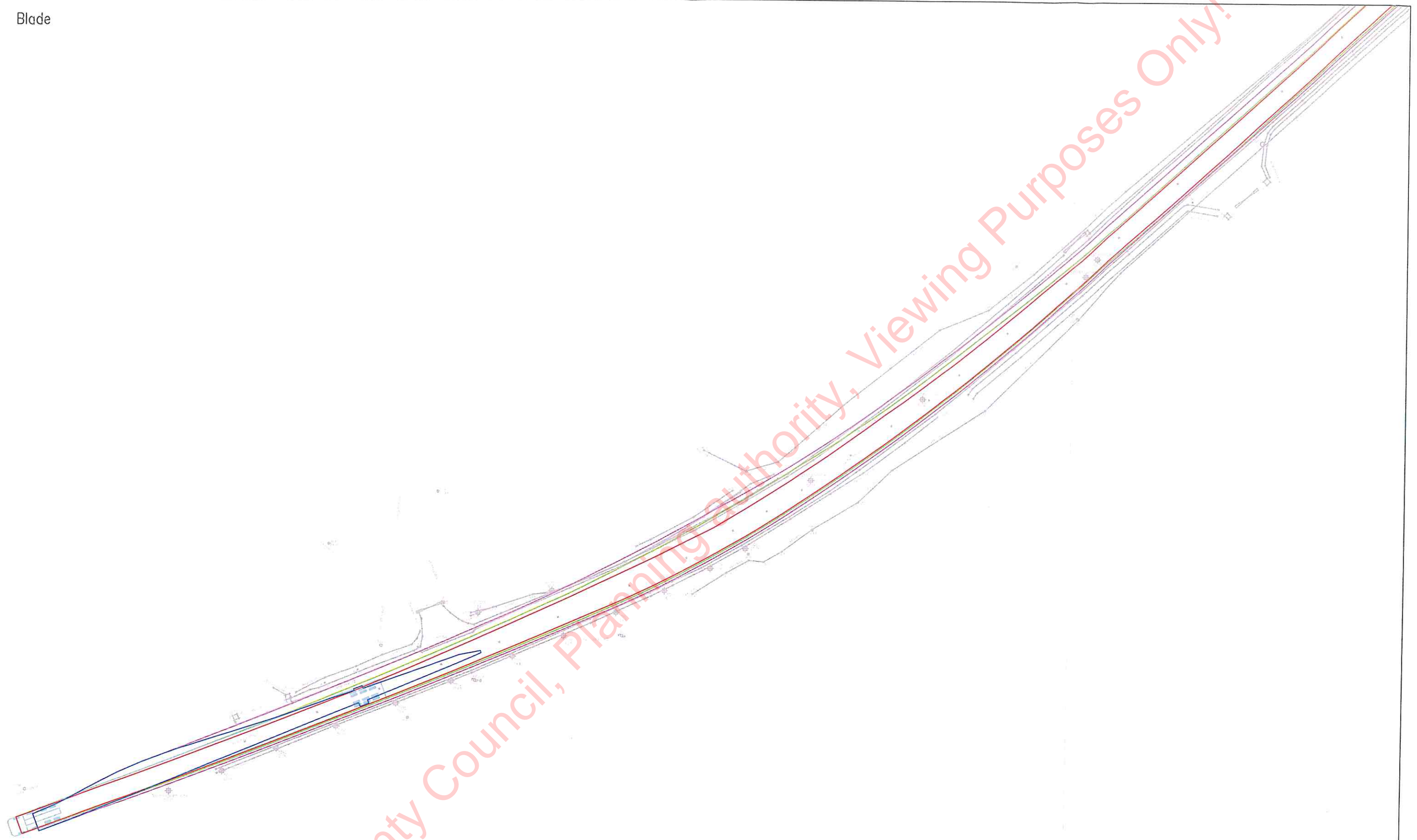
SPA Location
L2026 West of Bunclody



Drawn	JS	21/06/2020	Scale	1:500 @ A3
Designed	GB	21/06/2020	File No.	V136 Croaghaun SPA v1.dwg
Checked	GB	21/06/2020	Drawing Status	Draft
Drawing No.		SK05B	Point of Interest	30
Notes:				Revision
1. All mitigation is subject to confirmation through a test run.				1
2. This is not a construction drawing and is intended for illustration purposes only.				

Client	Coillte					
Key						
	Wheel SPA	Body SPA	Load SPA	Indicative	Over-run	Over-sail

Blade



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22 JAN 2021

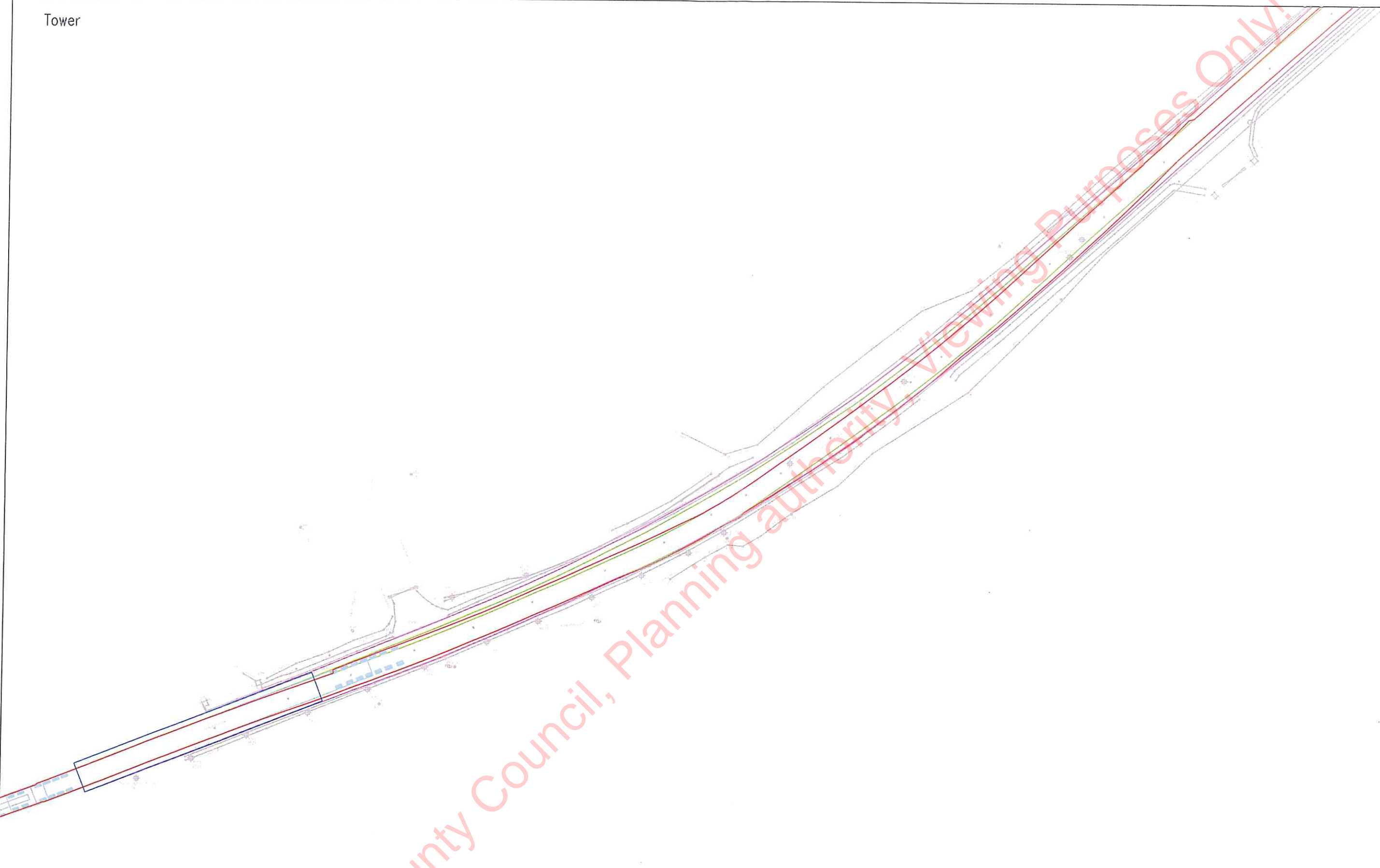
PLANNING DEPARTMENT

Project	Croaghaun Wind Farm
Drawing Title	Vestas V136 & Nordex N149 Top Tower
SPA Location	L2026 West of Bunclody

Drawn	JS	21/06/2020	Scale	1:500 @ A3
Designed	GB	21/06/2020	File No.	V136 Croaghaun SPA v1.dwg
Checked	GB	21/06/2020	Drawing Status	Draft
Point of Interest	31		Drawing No.	SK06
Notes:				Revision
1. All mitigation is subject to confirmation through a test run.				1
2. This is not a construction drawing and is intended for illustration purposes only.				

Key	Wheel SPA	Body SPA	Indicative	Over-run	Over-sail
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Tower



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Project

Croaghaun Wind Farm

Drawn	JS	21/06/2020	Scale	Custom @ A3
Designed	GB	21/06/2020	File No.	V136 Croaghaun SPA v1.dwg
Checked	GB	21/06/2020	Drawing Status	Draft
Point of Interest		31		



Client: Coillte

Key						
	Wheel SPA	Body SPA	Load SPA	Indicative	Over-run	Over-sail

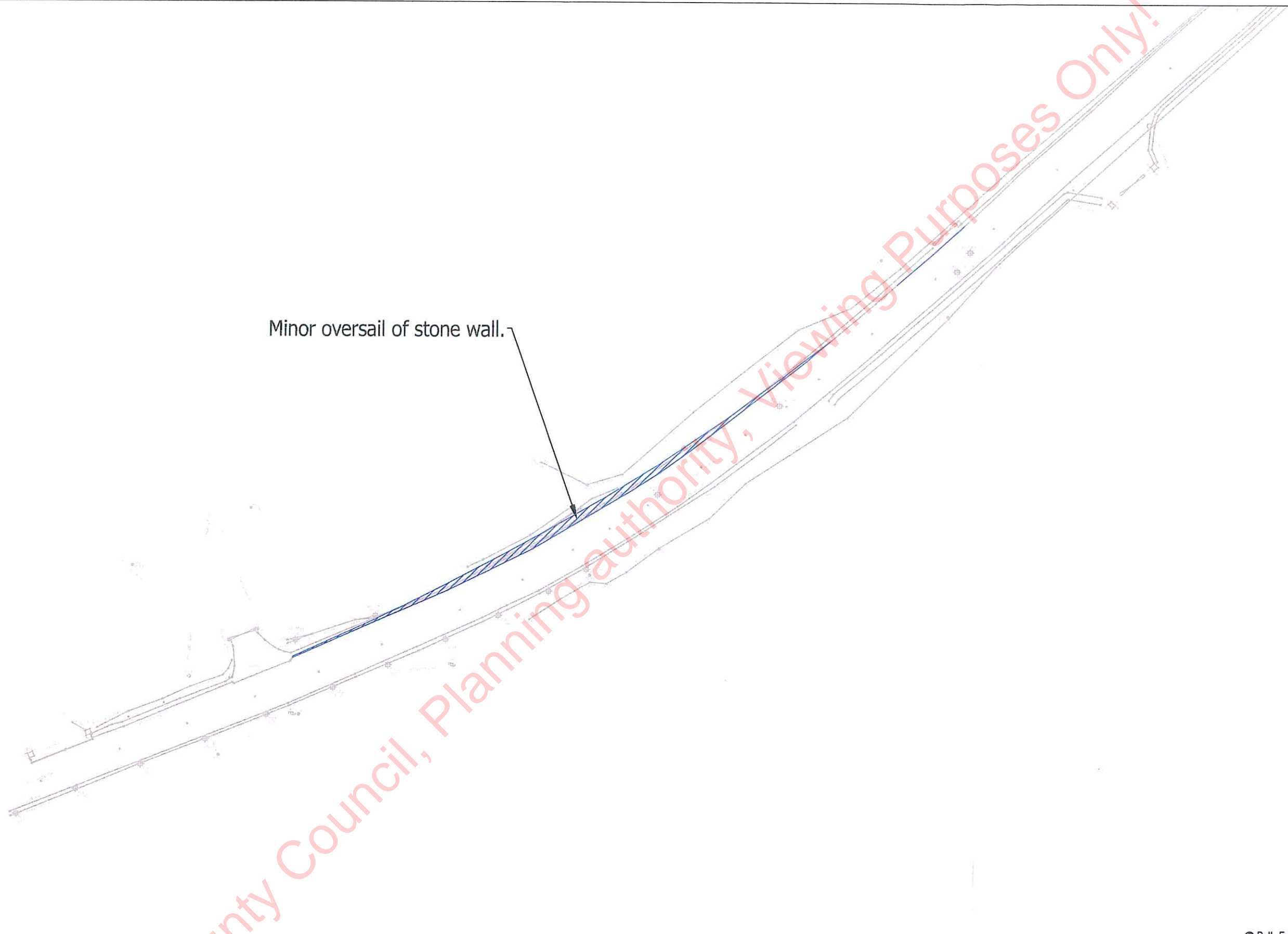
Drawing Title

Vestas V136 & Nordex N149 Top Tower

SPA Location

L2026 West of Bunclody

Drawing No. SK06A	Notes: 1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.	Revision 1
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Minor oversail of stone wall.

Project	Croaghaun Wind Farm
Drawing Title	Vestas V136 & Nordex N149 Top Tower
SPA Location	L2026 West of Bunclody

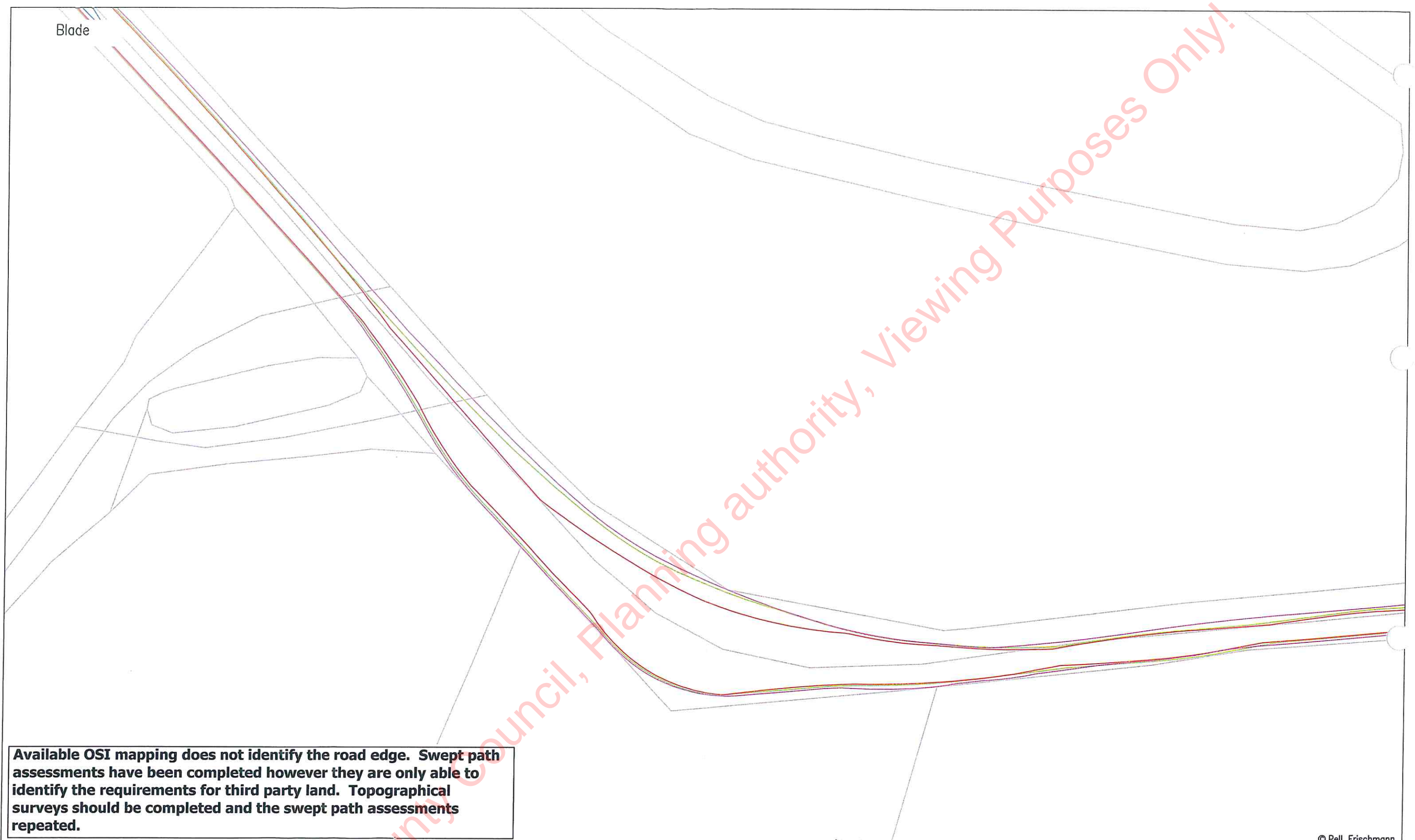
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Designed	GB	16/12/2020	File No.	201216 a tracking.dwg
Checked	GB	16/12/2020	Drawing Status	Draft
Point of Interest	31		Drawing No.	SK06B
Notes:				Revision
1. All mitigation is subject to confirmation through a test run.				1
2. This is not a construction drawing and is intended for illustration purposes only.				

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 PLANNING DEPARTMENT
 22 JAN 2021
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Key	Wheel SPA	Body SPA	Load SPA	Indicative	Over-run	Over-sail
-----	-----------	----------	----------	------------	----------	-----------

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Blade



Available OSI mapping does not identify the road edge. Swept path assessments have been completed however they are only able to identify the requirements for third party land. Topographical surveys should be completed and the swept path assessments repeated.

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Project

Croaghaun Wind Farm



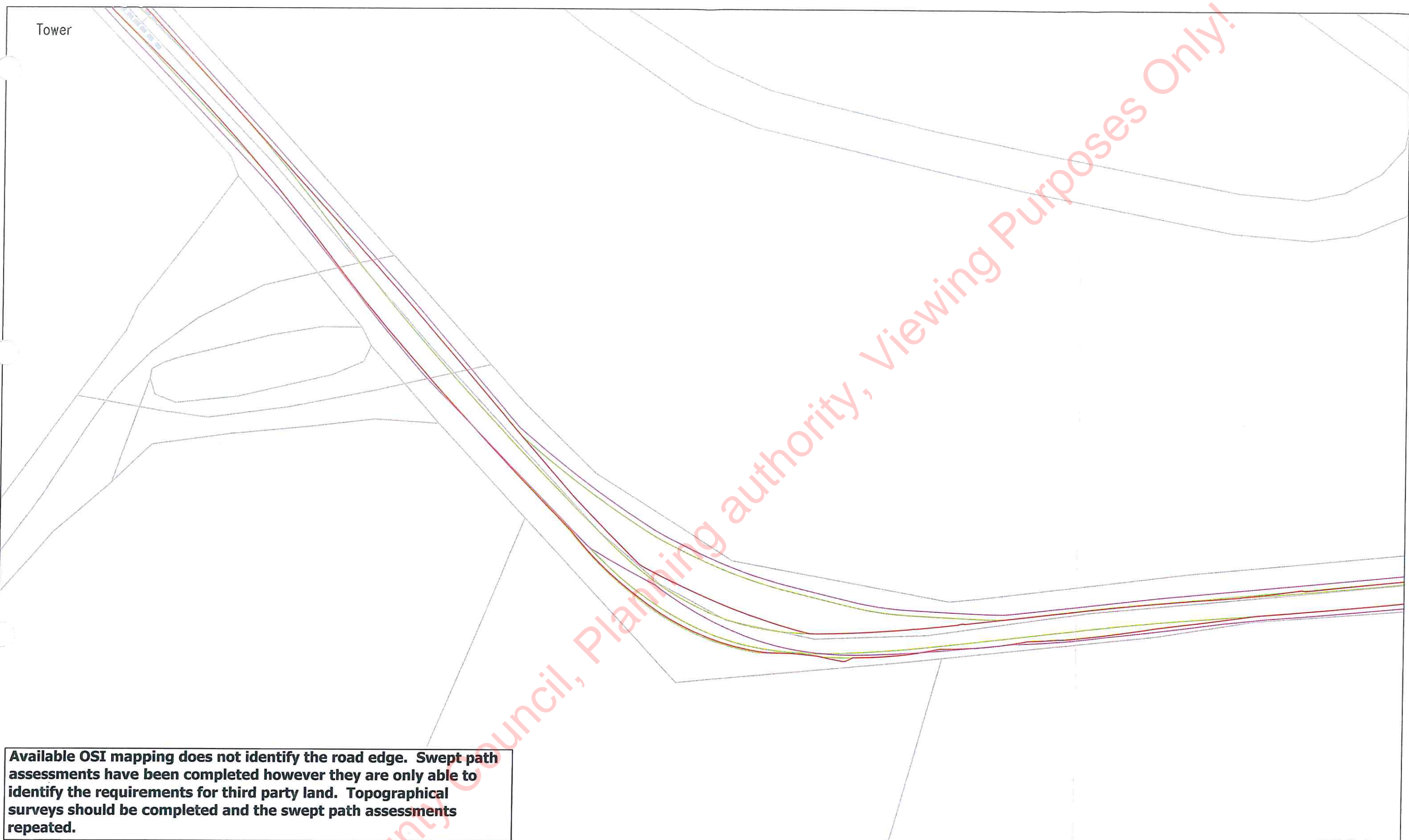
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Designed	GB	21/06/2020	File No. V136 Croaghaun SPA v1.dwg
Checked	GB	21/06/2020	
Point of Interest			Drawing Status
41			Draft

Client	Coillte
Key	Wheel SPA Body SPA Load SPA Indicative Over-run Over-sail

Drawing Title	Vestas V136 & Nordex N149 Top Tower
SPA Location	L2026 East of Kilbranish

Drawing No.	SK07	Notes:	Revision
		1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.	1

Tower



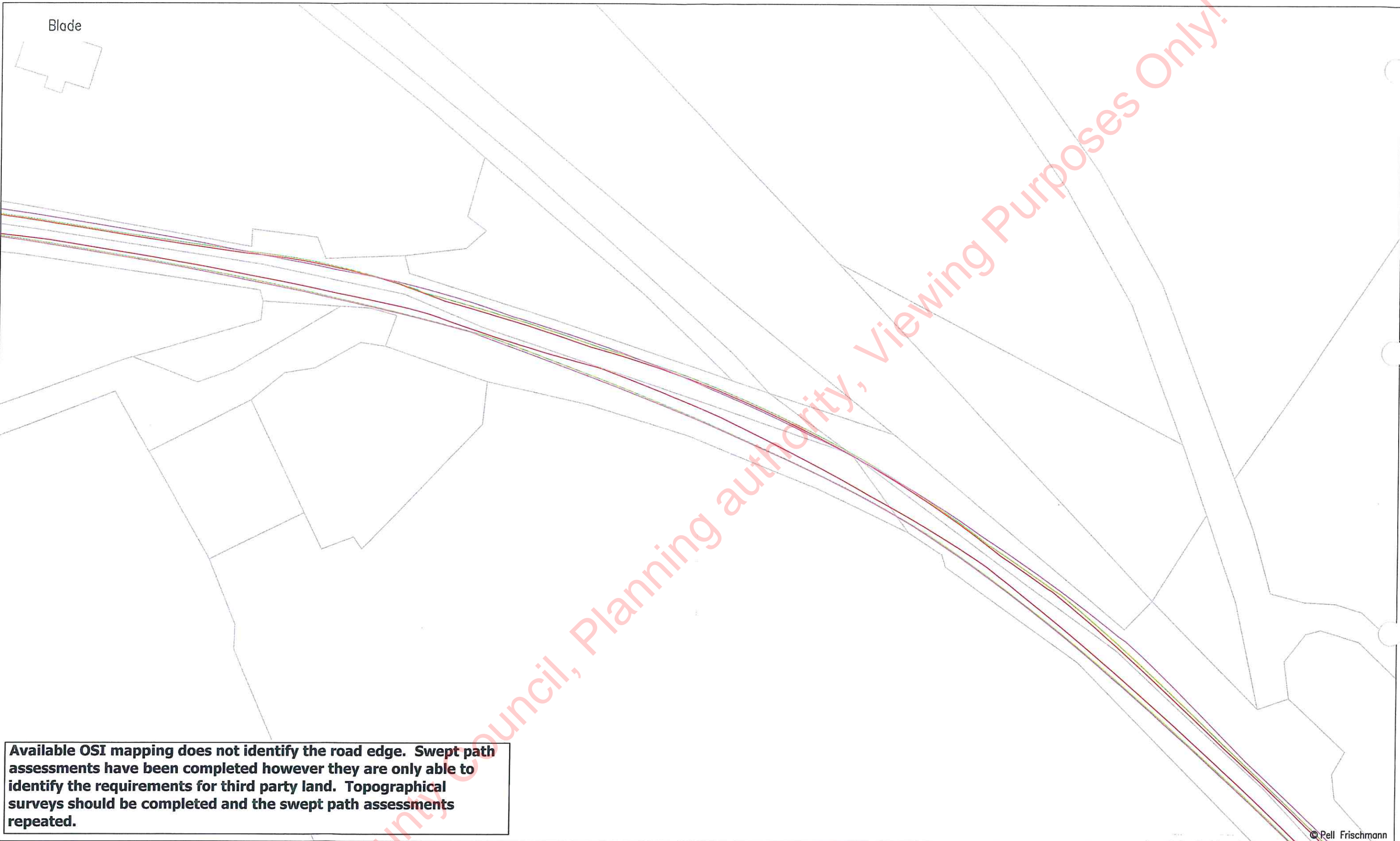
Available OSI mapping does not identify the road edge. Swept path assessments have been completed however they are only able to identify the requirements for third party land. Topographical surveys should be completed and the swept path assessments repeated.

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Client Collite	Project Croaghaun Wind Farm	Drawn JS	Date 21/06/2020	Scale 1:500 @ A3
	Drawing Title Vestas V136 & Nordex N149 Top Tower	Designed GB	Date 21/06/2020	File No. V136 Croaghaun SPA v1.dwg
Key Wheel SPA Body SPA Load SPA Indicative Over-run Over-sail	SPA Location L2026 East of Kilbranish	Checked GB	Date 21/06/2020	Drawing Status Draft
		Point of Interest 41	Drawing No. SK07A	Notes: 1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.
				Revision 1

Blade



Available OSI mapping does not identify the road edge. Swept path assessments have been completed however they are only able to identify the requirements for third party land. Topographical surveys should be completed and the swept path assessments repeated.

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Project

Croaghaun Wind Farm



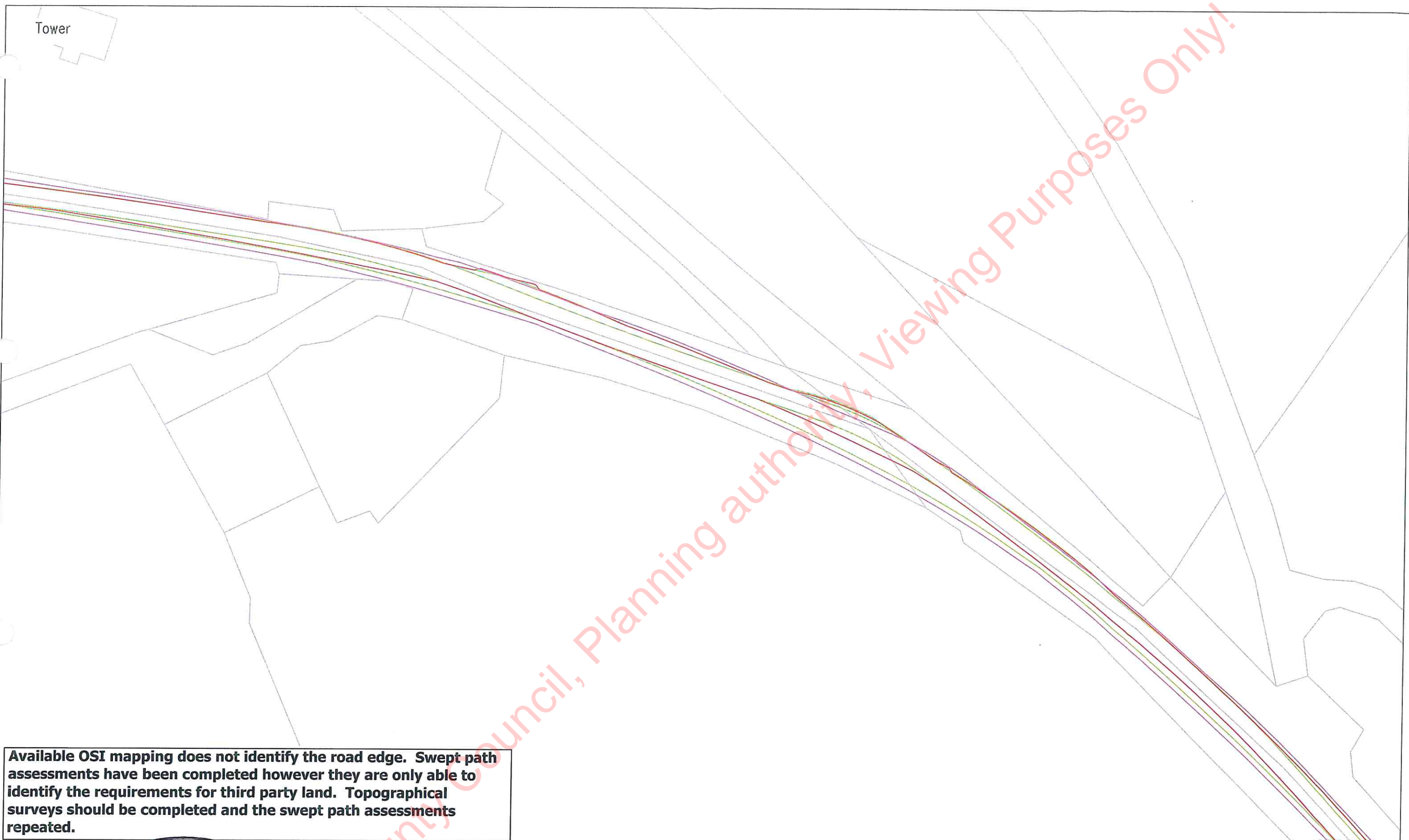
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Drawn JS	21/06/2020	1:500 @ A3
Designed GB	21/06/2020	File No. V136 Croaghaun SPA v1.dwg
Checked GB	21/06/2020	
Point of Interest	42	Drawing Status Draft

Client	Coillte
Key	Wheel SPA Body SPA Load SPA Indicative Over-run Over-sail

Drawing Title	SPA Location
Vestas V136 & Nordex N149 Top Tower	L2026 East of Kilbranish

Drawing No.	Notes	Revision
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Tower

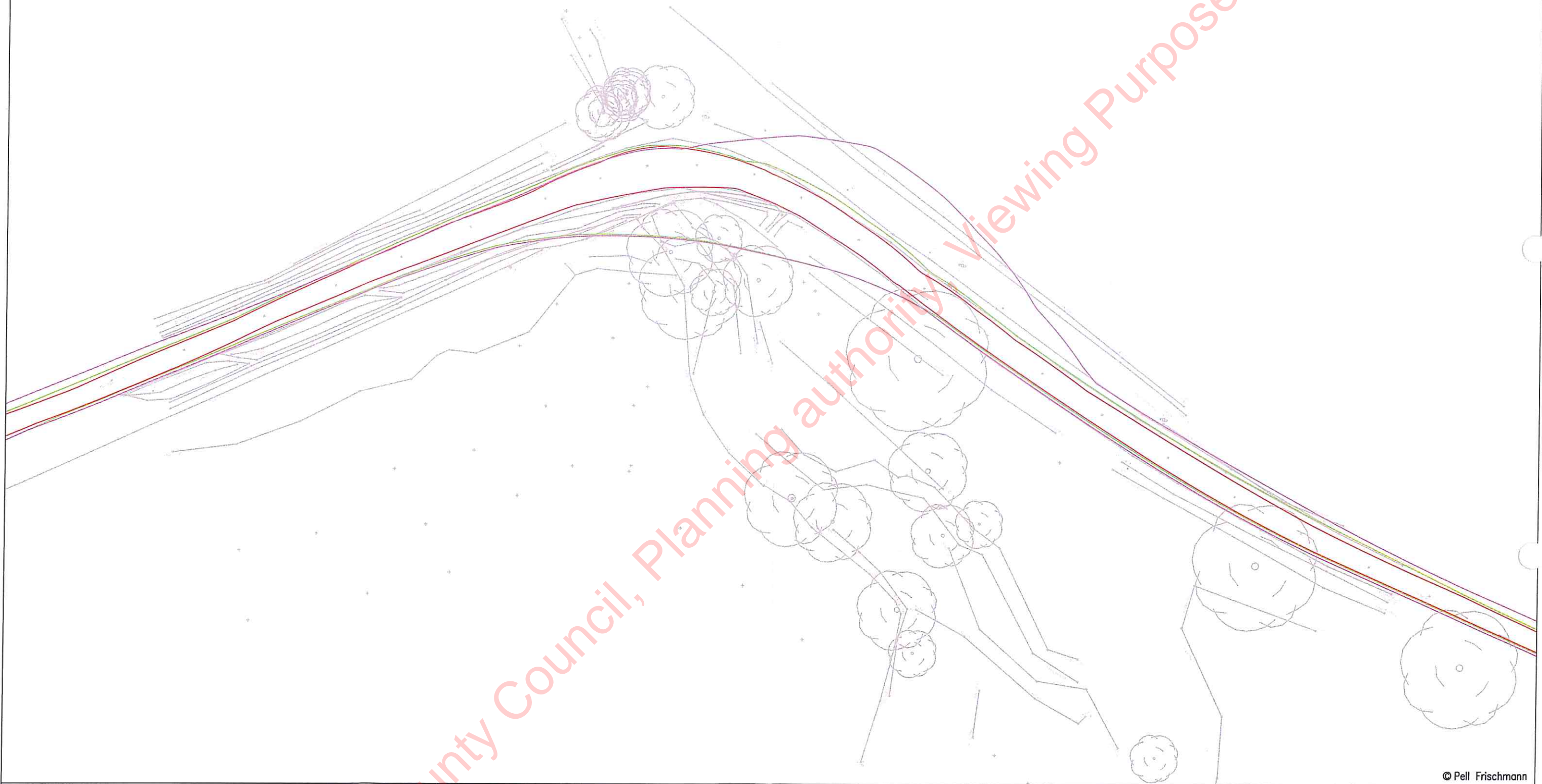


Available OSI mapping does not identify the road edge. Swept path assessments have been completed however they are only able to identify the requirements for third party land. Topographical surveys should be completed and the swept path assessments repeated.

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Client Coillte	Project	Croaghaun Wind Farm		Drawn	JS	21/06/2020	Scale	1:500 @ A3	
	Drawing Title	Vestas V136 & Nordex N149 Top Tower		Designed	GB	21/06/2020	File No.	V136 Croaghaun SPA v1.dwg	
Key Wheel SPA Body SPA Load SPA Indicative Over-run Over-sail	SPA Location	L2026 East of Kilbranish		Checked	GB	21/06/2020	Drawing Status	Draft	
				Drawing No.	SK08A		Notes:	Revision	
							1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.		1



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Project
 Croaghaun Wind Farm

Drawing Title
 Vestas V136 & Nordex N149 Top Tower

SPA Location
 L2026 Kilbranish



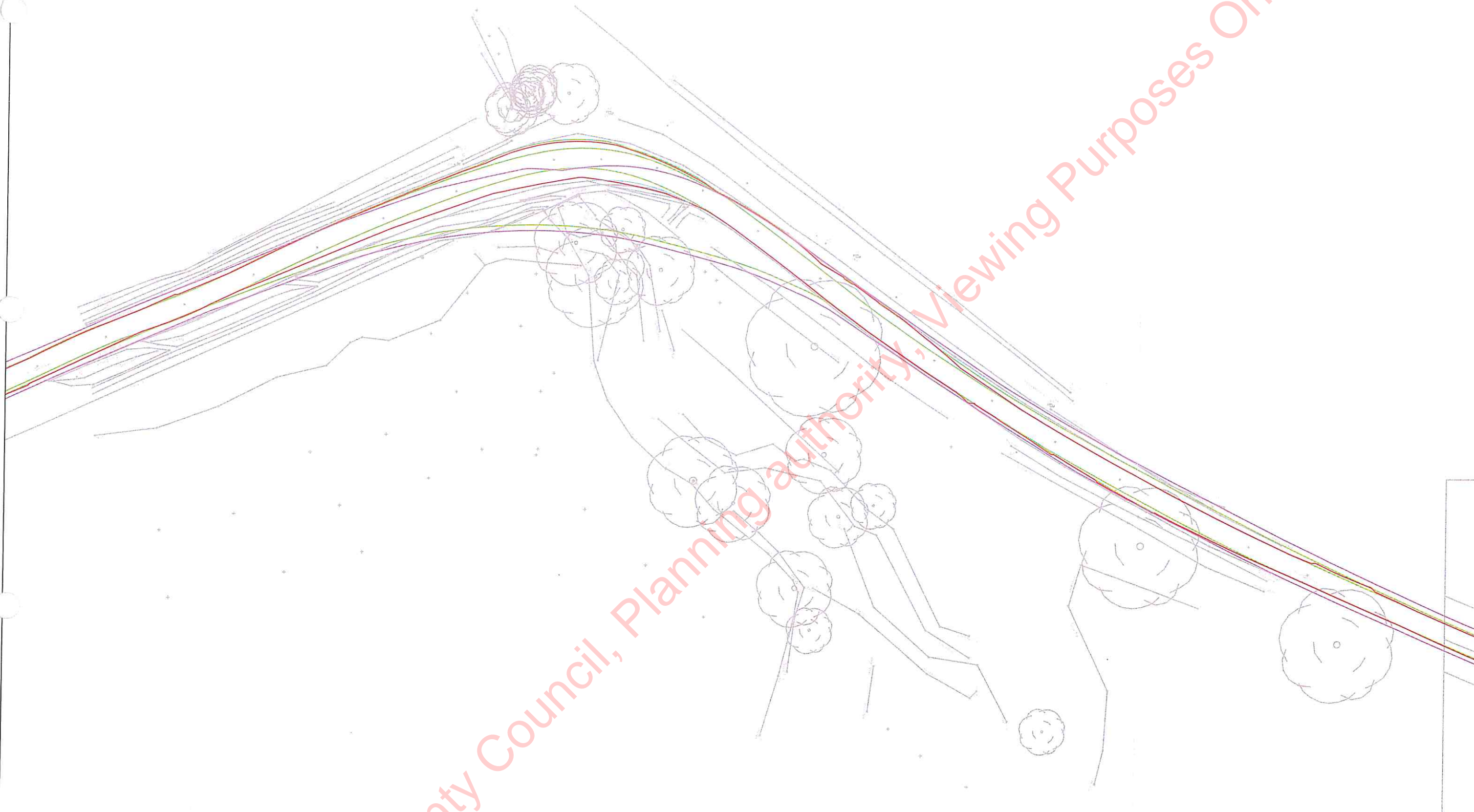
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Designed	GB	21/06/2020	File No. V136 Croaghaun SPA v1.dwg
Checked	GB	21/06/2020	Drawing Status Draft
Point of Interest		43	
Drawing No.	SK09		Revision
Notes:			1
1. All mitigation is subject to confirmation through a test run.			
2. This is not a construction drawing and is intended for illustration purposes only.			

Client
 Coillte

Key

Wheel SPA	Body SPA	Load SPA	Indicative	Over-run	Over-sail

Tower

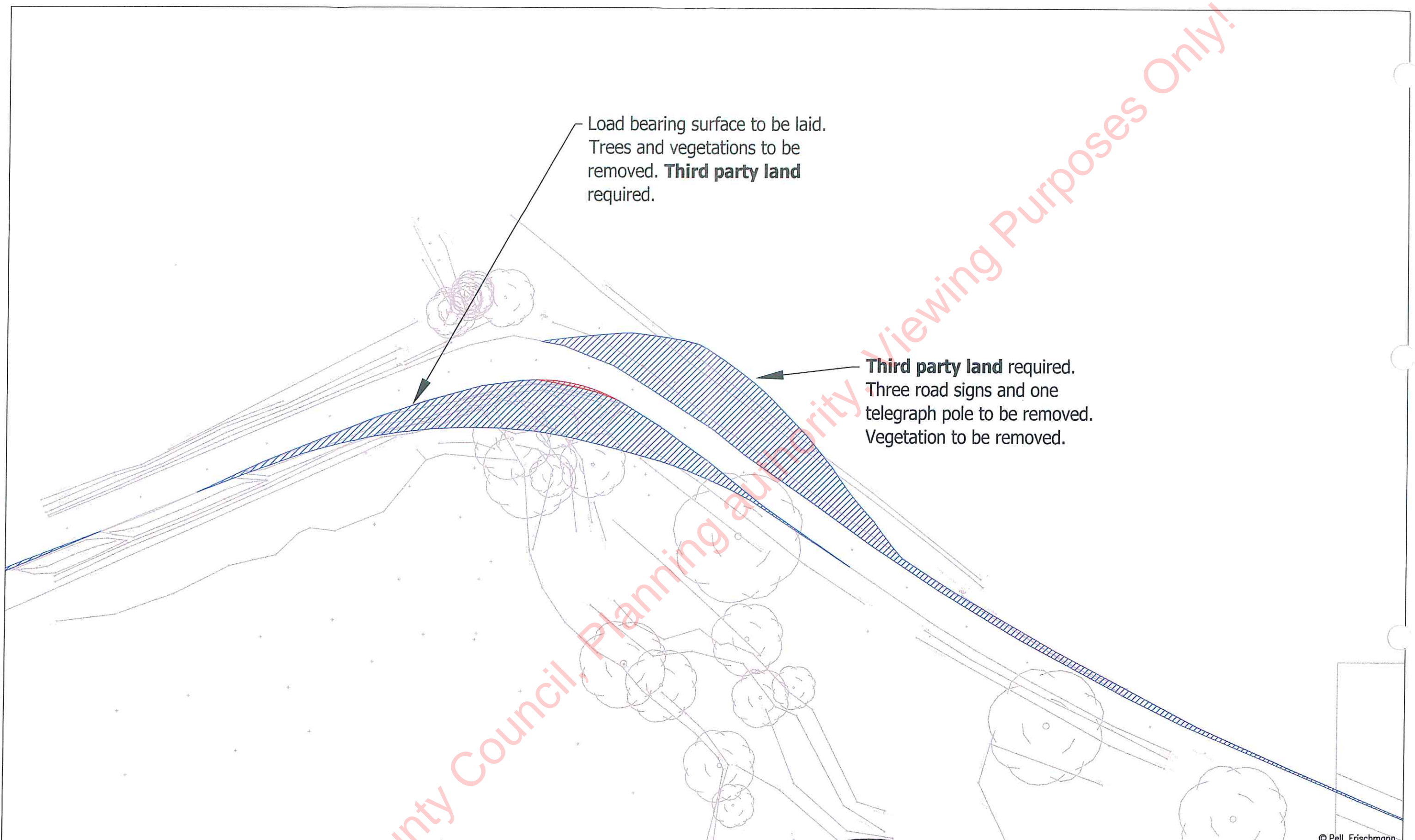


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Client	Project	Croaghaun Wind Farm	
Key	Drawing Title	Vestas V136 & Nordex N149 Top Tower	
Wheel SPA	SPA Location	L2026 Kilbranish	
Body SPA			
Load SPA			
Indicative			
Over-run			
Over-sail			

Drawn	Name	Date	Scale
Designed	GB	21/06/2020	1:500 @ A3
Checked	GB	21/06/2020	File No. V136 Croaghaun SPA v1.dwg
Point of Interest			43
Drawing No.			Drawing Status
SK09A			Draft
Notes:			Revision
1. All mitigation is subject to confirmation through a test run.			1
2. This is not a construction drawing and is intended for illustration purposes only.			



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Project
Croaghaun Wind Farm

Drawing Title
Vestas V136 & Nordex N149 Top Tower

SPA Location
L2026 Kilbranish



	Name	Date	Scale	1:500 @ A3
Drawn	JS	21/06/2020	File No.	V136 Croaghaun SPA v1.dwg
Designed	GB	21/06/2020	Drawing Status	Draft
Checked	GB	21/06/2020	Point of Interest	43
Drawing No.	SK09B	Notes:	Revision	
		1. All mitigation is subject to confirmation through a test run.	1	
		2. This is not a construction drawing and is intended for illustration purposes only.		

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Key						
	Wheel SPA	Body SPA	Load SPA	Indicative	Over-run	Over-sail



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Pell Frischmann <small>100 DEERFIELD BUNBURY, EH2 3ES Tel: +44 (0)1274 511270 Email: pfrischmann@pellfrischmann.com www.pellfrischmann.com</small>	Project	Croaghaun Wind Farm		Name	JS	Date	21/06/2020	Scale	1:500 @ A3
	Client	Drawing Title	Vestas V136 & Nordex N149 Top Tower		Designed	GB	21/06/2020	File No.	V136 Croaghaun SPA v1.dwg
Key Wheel SPA Body SPA Load SPA Indigestive Over-run Over-sail	SPA Location	L2026 Kilbranish		Checked	GB	21/06/2020	Drawing Status	Draft	
				Drawing No.	SK10		Point of Interest	44	Revision

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Notes:
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Tower



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Client: **Coillte**

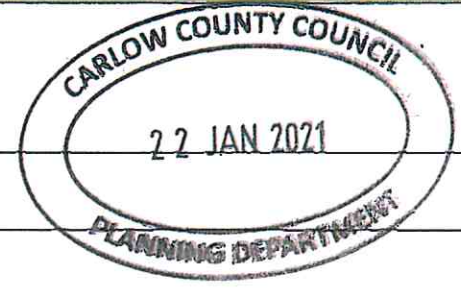
Key

Wheel SPA	Body SPA	Load SPA	Indicative	Over-run	Over-sail

Project: **Croaghaun Wind Farm**

Drawing Title: **Vestas V136 & Nordex N149 Top Tower**

SPA Location: **L2026 Kilbranish**



Drawn	JS	21/06/2020	Scale	1:500 @ A3
Designed	GB	21/06/2020	File No.	V136 Croaghaun SPA v1.dwg
Checked	GB	21/06/2020	Drawing Status	Draft
Point of Interest	44		Drawing No.	SK10A
Notes:				Revision
1. All mitigation is subject to confirmation through a test run.				1
2. This is not a construction drawing and is intended for illustration purposes only.				



Trees and vegetation to be cleared. Land search recommended to confirm whether **third party land** is required. One telegraph pole to be removed.

Load bearing surface to be laid. Trees and vegetation to be cleared. Land search recommended to confirm whether **third party land** is required. Drain to be culverted.

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22 JAN 2021

Client: *[Redacted]*

Key
 Wheel SPA Body SPA Lead SPA Indicative
 Over-run Over-sail

Project	Croaghaun Wind Farm
Drawing Title	Vestas V136 & Nordex N149 Top Tower
SPA Location	L2026 Kilbranish

Drawn	Name	Date	Scale	Custom @ A3
Designed	JS	21/06/2020	File No.	V136 Croaghaun SPA v1.dwg
Checked	GB	21/06/2020	Drawing Status	Draft
Point of Interest	44			
Drawing No.	SK10B	Notes:		Revision
		1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.		1

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Client: **Coillte**

Key

Wheel SPA	Body SPA	Load SPA	Indicative	Over-run	Over-sail

Project: **Croaghaun Wind Farm**

Drawing Title: **Vestas V136 & Nordex N149 Top Tower**

SPA Location: **L2026 Kilbranish**



Drawn	JS	21/06/2020	Scale	Custom @ A3
Designed	GB	21/06/2020	File No.	V136 Croaghaun SPA v1.dwg
Checked	GB	21/06/2020	Drawing Status	Draft
Point of Interest	45		Drawing No.	SK11
Notes:				Revision
1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.				1



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	Drawing Title	Vestas V136 & Nordex N149 Top Tower	Designed	GB	21/06/2020	File No.	V136 Croaghaun SPA v1.dwg	
Client	SPA Location	L2026 Kilbranish	Checked	GB	21/06/2020	Drawing Status	Draft	
Key			Drawing No.	SK11A	Point of Interest	45	Revision	1
Wheel SPA (Red line) Body SPA (Blue line) Indicative (Dotted line) Over-run (Red hatched) Over-sail (Blue hatched)			Notes:	1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.				

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Client: **Coillte**

Key

Wheel SPA	Body SPA	Load SPA	Indicative	Over-run	Over-sail

Project: **Croaghaun Wind Farm**

Drawing Title: **Vestas V136 & Nordex N149 Top Tower**

SPA Location: **L2026 Kilbranish**



	Name	Date	Scale	1:500 @ A3
Drawn	JS	21/06/2020	File No.	V136 Croaghaun SPA v1.dwg
Designed	GB	21/06/2020	Drawing Status	Draft
Checked	GB	21/06/2020	Point of Interest	45
Drawing No.	SK11B	Notes:		Revision
		1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.		1

Blade



Available OSI mapping does not identify the road edge. Swept path assessments have been completed however they are only able to identify the requirements for third party land. Topographical surveys should be completed and the swept path assessments repeated.

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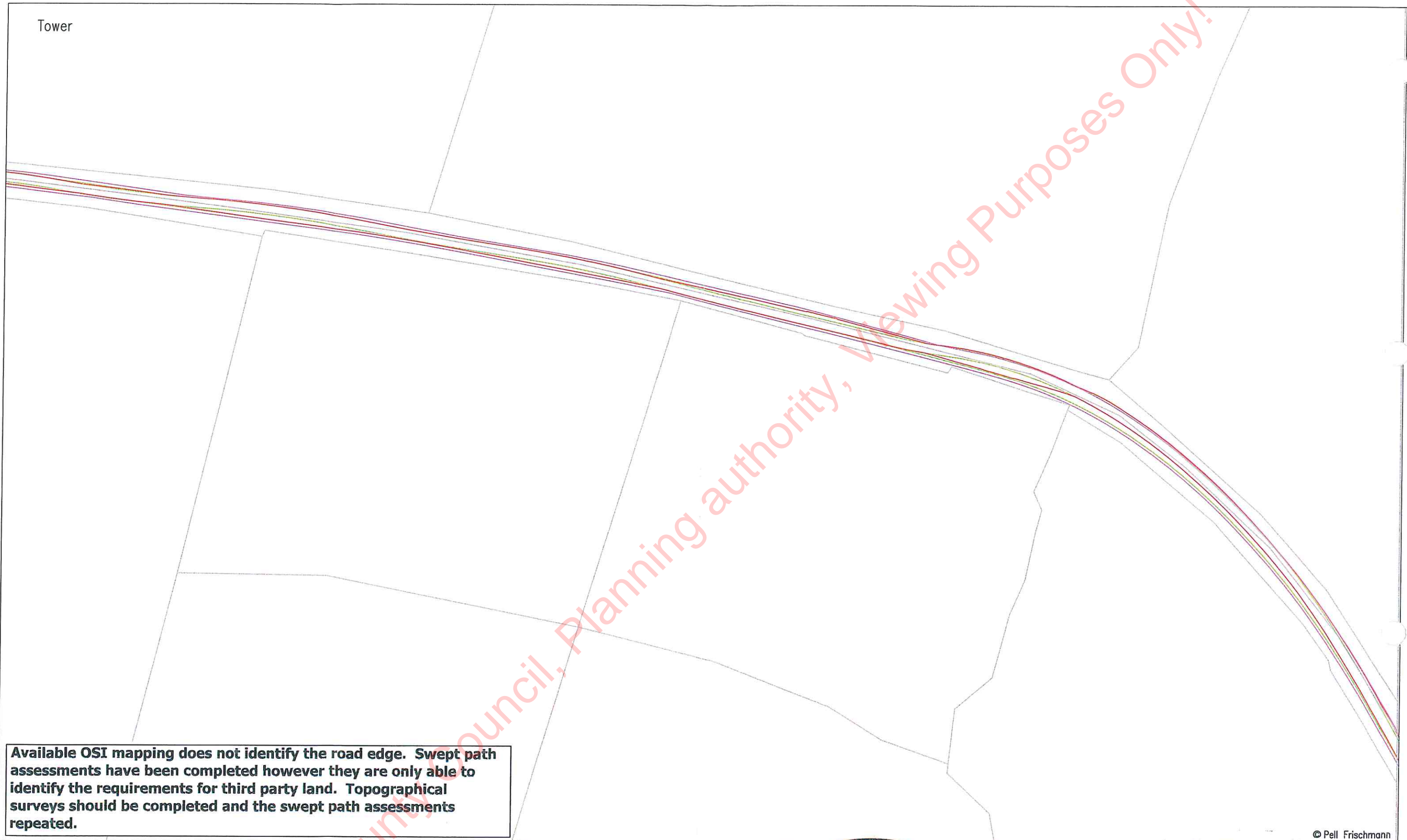


Client	Coillte
Key	Wheel SPA Body SPA Load SPA Indicative Over-run Over-sail

Project	Croaghaun Wind Farm
Drawing Title	Vestas V136 & Nordex N149 Top Tower
SPA Location	L2026 West of Kilbranish

Name	Date	Scale	1:1000 @ A3
Drawn JS	21/06/2020	File No.	V136 Croaghaun SPA v1.dwg
Designed GB	21/06/2020	Drawing Status	Draft
Checked GB	21/06/2020	Point of Interest	47
Drawing No.	SK12	Notes:	Revision
		1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.	1

Tower

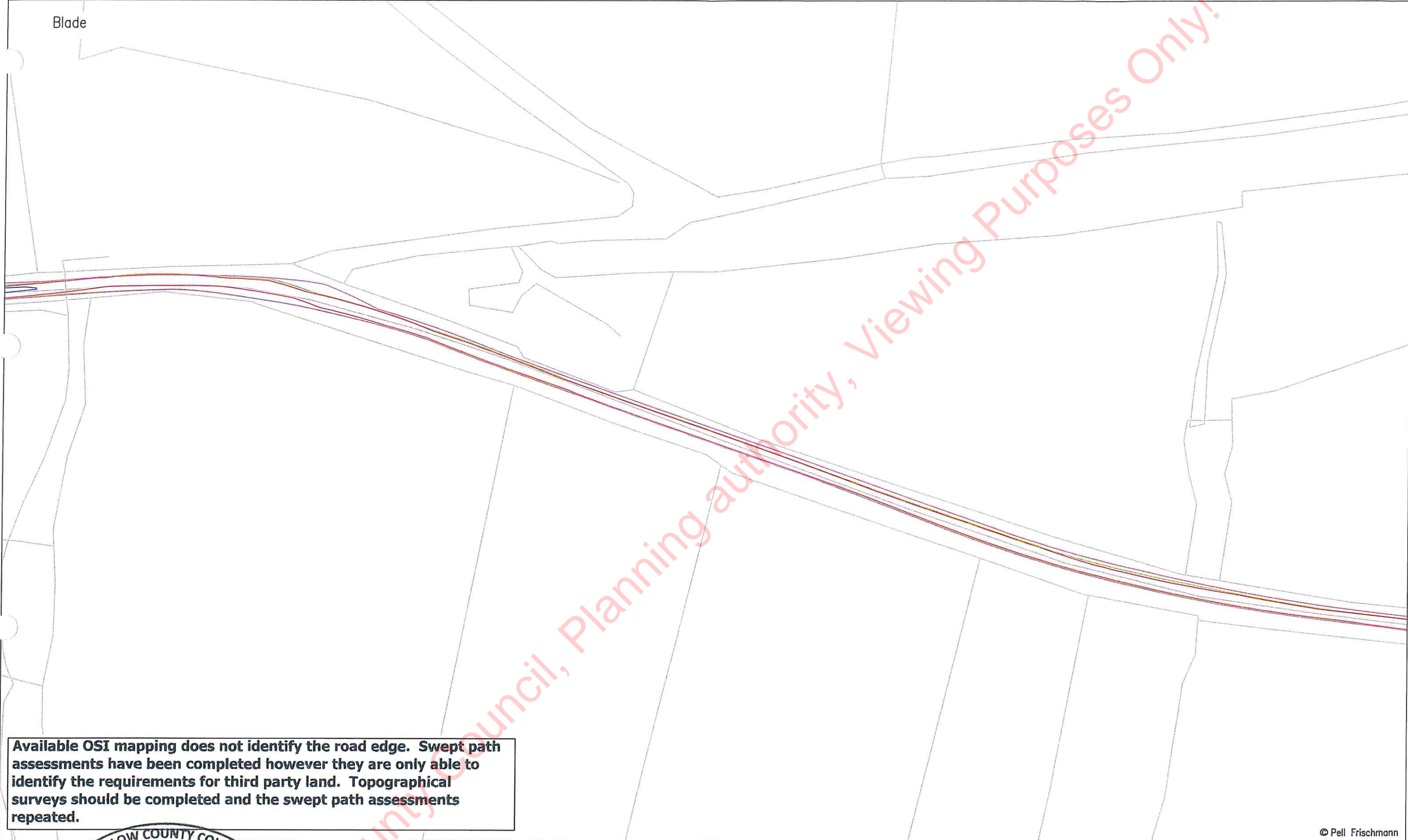


Available OSI mapping does not identify the road edge. Swept path assessments have been completed however they are only able to identify the requirements for third party land. Topographical surveys should be completed and the swept path assessments repeated.

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Pell Frischmann 93 GEORGE STREET, EDINBURGH, EH2 3ES Tel: +44 (0)131 240 1270 Email: pfe@pellfrischmann.com www.pellfrischmann.com		Project Croaghaun Wind Farm		<table border="1"> <tr> <th>Name</th> <th>Date</th> <th>Scale</th> </tr> <tr> <td>Drawn JS</td> <td>21/06/2020</td> <td>1:1000 @ A3</td> </tr> <tr> <td>Designed GB</td> <td>21/06/2020</td> <td>File No. V136 Croaghaun SPA v1.dwg</td> </tr> <tr> <td>Checked GB</td> <td>21/06/2020</td> <td>Drawing Status Draft</td> </tr> </table>	Name	Date	Scale	Drawn JS	21/06/2020	1:1000 @ A3	Designed GB	21/06/2020	File No. V136 Croaghaun SPA v1.dwg	Checked GB	21/06/2020	Drawing Status Draft
Name	Date	Scale														
Drawn JS	21/06/2020	1:1000 @ A3														
Designed GB	21/06/2020	File No. V136 Croaghaun SPA v1.dwg														
Checked GB	21/06/2020	Drawing Status Draft														
Client Coillte	Drawing Title Vestas V136 & Nordex N149 Top Tower	SPA Location L2026 West of Kilbranish	<table border="1"> <tr> <td>Point of Interest</td> <td>47</td> <td>Revision</td> <td>1</td> </tr> </table>	Point of Interest	47	Revision	1									
Point of Interest	47	Revision	1													
Key Wheel SPA (red line) Body SPA (green line) Load SPA (blue line) Indicative (grey line) Over-run (red hatched) Over-sail (blue hatched)		Drawing No. SK12A														
		Notes: 1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.														

Blade



Available OSI mapping does not identify the road edge. Swept path assessments have been completed however they are only able to identify the requirements for third party land. Topographical surveys should be completed and the swept path assessments repeated.

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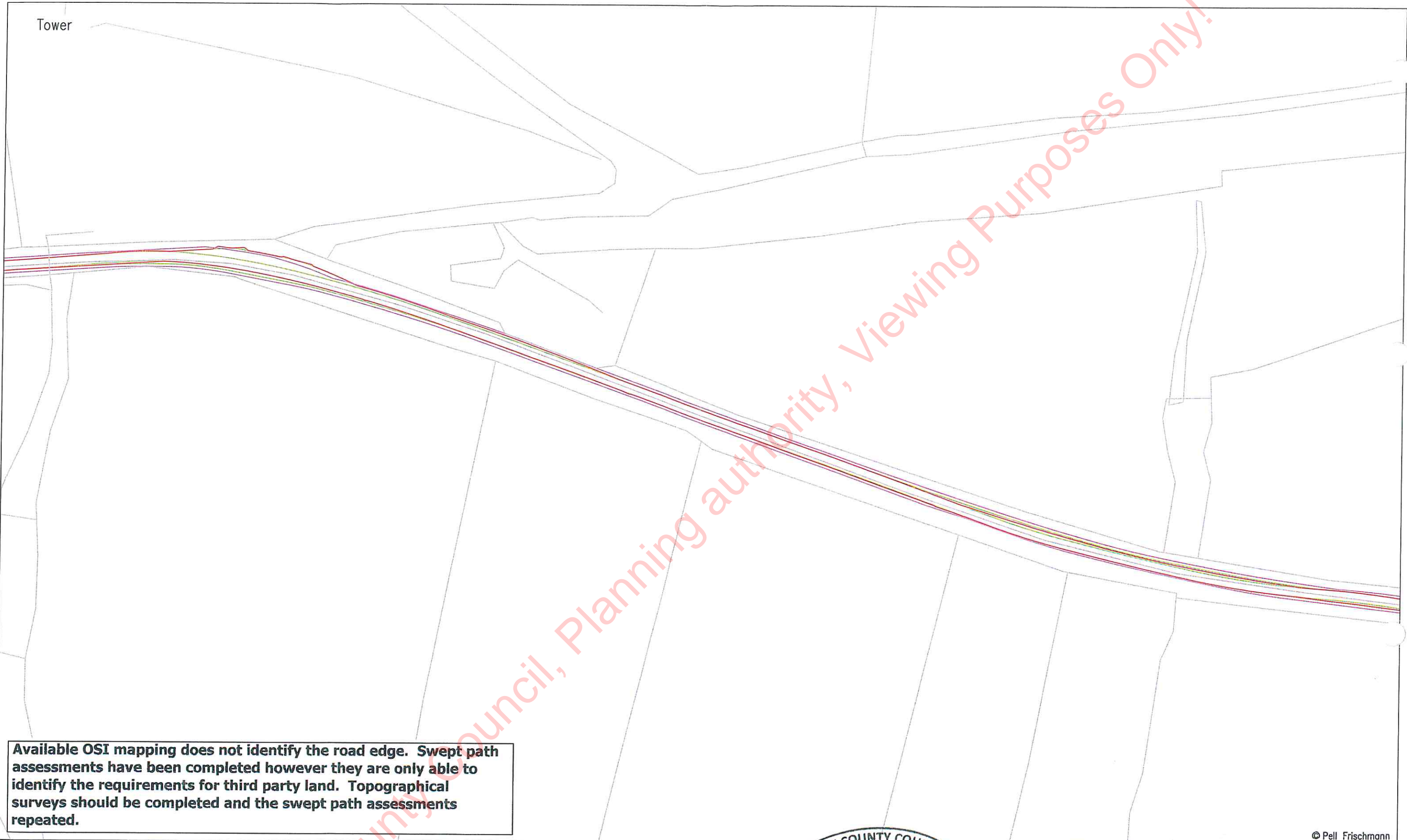


Project	Croaghaun Wind Farm
Drawing Title	Vestas V136 & Nordex N149 Top Tower
SPA Location	L2026 West of Kilbranish

Name	Date	Scale	1:1000 @ A3
Drawn JS	21/06/2020	File No.	V136 Croaghaun SPA v1.dwg
Designed GB	21/06/2020	Drawing Status	Draft
Checked GB	21/06/2020	Point of Interest	48,49
Drawing No.	SK13	Notes:	Revision
		1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.	1

Key	Wheel SPA	Body SPA	Load SPA	Indicative	Over-run	Over-sail

Tower



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Project
 Croaghaun Wind Farm



Drawn	JS	21/06/2020	Scale	1:1000 @ A3
Designed	GB	21/06/2020	File No.	V136 Croaghaun SPA v1.dwg
Checked	GB	21/06/2020	Drawing Status	Draft
Point of Interest	48,49			

Client: Coillte

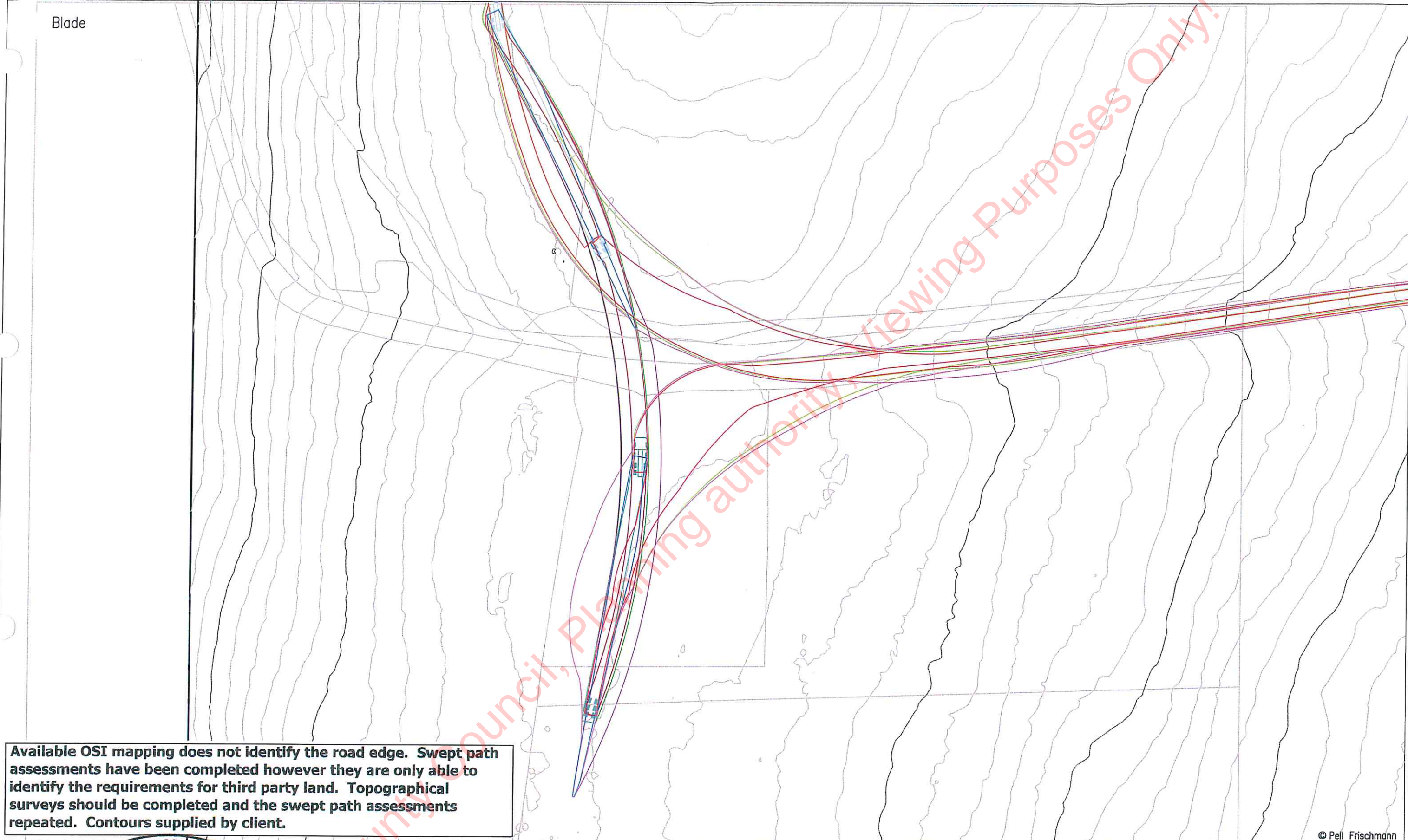
Key						
	Wheel SPA	Body SPA	Load SPA	Indicative	Over-run	Over-sail

Drawing Title
 Vestas V136 & Nordex N149 Top Tower

SPA Location
 L2026 West of Kilbranish

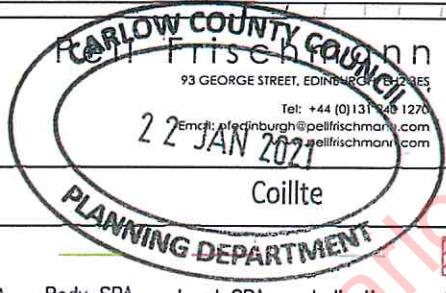
Drawing No. SK13A	Notes: 1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.	Revision 1
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Blade



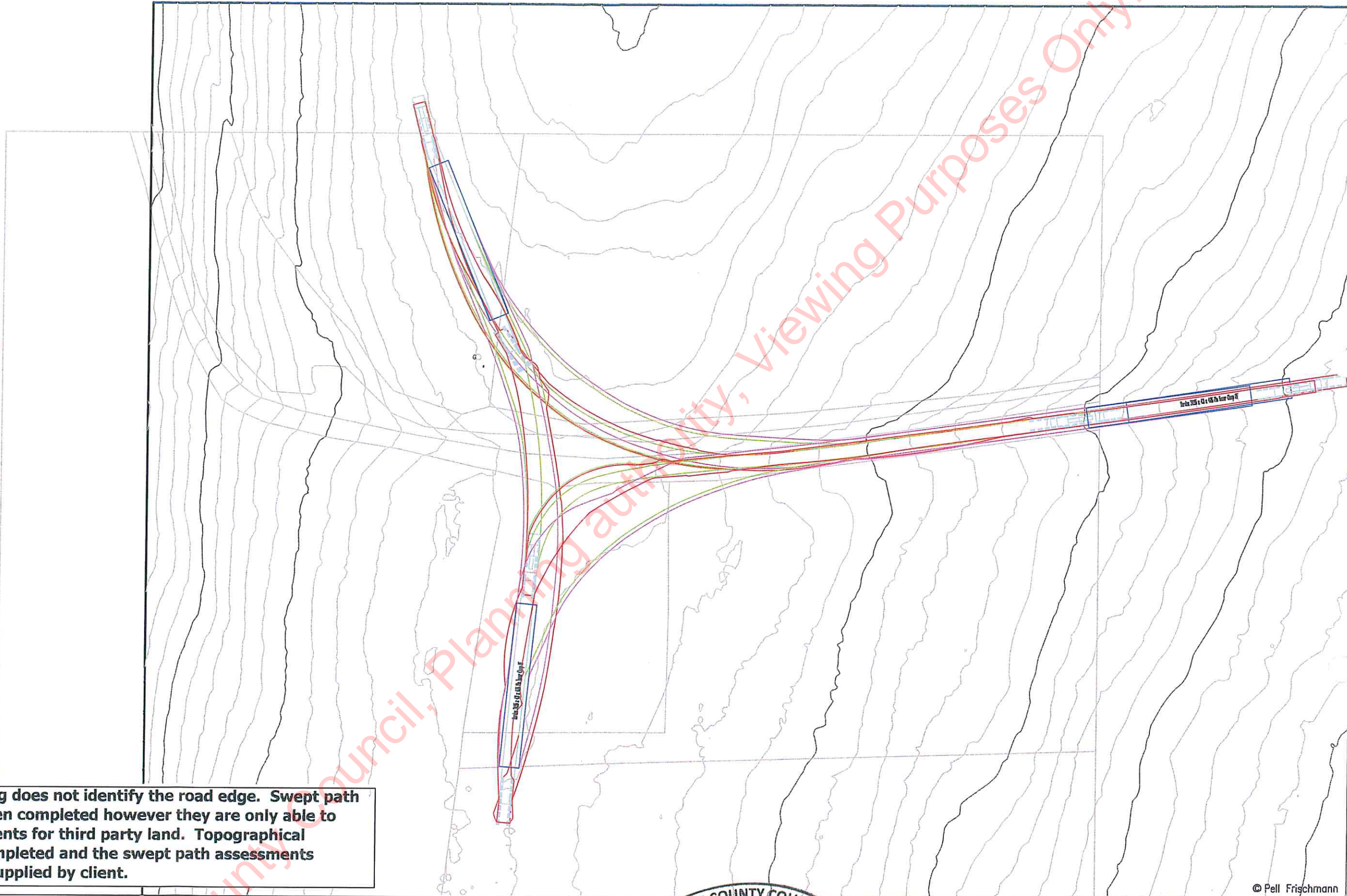
Available OSI mapping does not identify the road edge. Swept path assessments have been completed however they are only able to identify the requirements for third party land. Topographical surveys should be completed and the swept path assessments repeated. Contours supplied by client.

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Client Coillte	Project	Croaghaun Wind Farm	Drawn	JS	29/09/2020	Scale	Custom @ A3	
	Drawing Title	Vestas V136 & Nordex N149 Top Tower	Designed	GB	28/09/2020	File No.	V136 Croaghaun SPA v1.dwg	
Key Wheel SPA Body SPA Load SPA Indicative Over-run Over-sail	SPA Location	L2026 Proposed Turning Point	Checked	GB	29/09/2020	Drawing Status	Draft	
			Point of Interest		52	Drawing No.	SK14	
			Notes: 1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.				Revision	1

Tower



Available OSI mapping does not identify the road edge. Swept path assessments have been completed however they are only able to identify the requirements for third party land. Topographical surveys should be completed and the swept path assessments repeated. Contours supplied by client.

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Project
 Croaghaun Wind Farm

Drawing Title
 Vestas V136 & Nordex N149 Top Tower

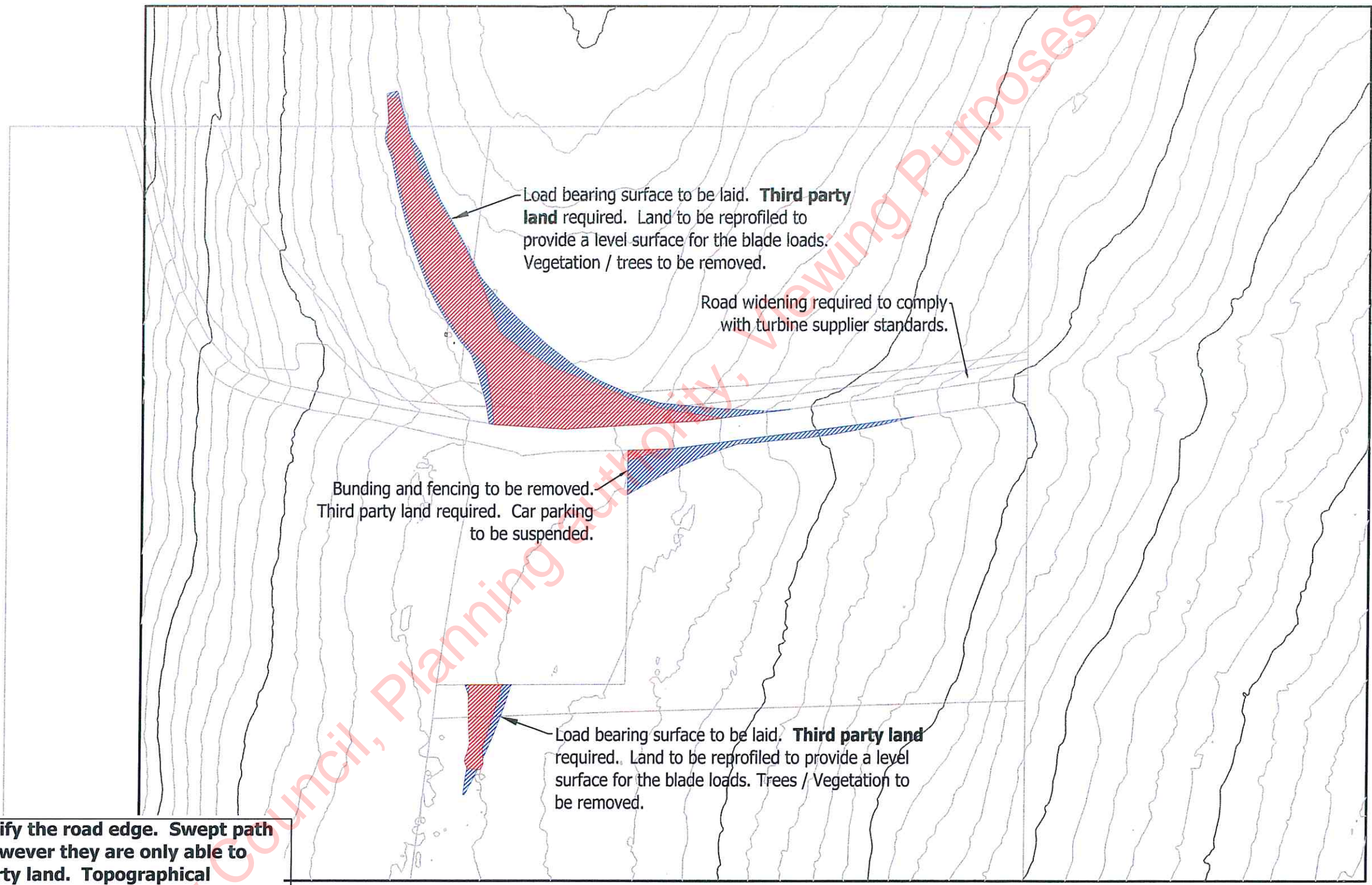
SPA Location
 L2026 Proposed Turning Point



Drawn	JS	29/09/2020	Scale	Custom @ A3
Designed	GB	28/09/2020	File No.	V136 Croaghaun SPA v1.dwg
Checked	GB	29/09/2020	Drawing Status	Draft
Point of Interest	52		Drawing No.	SK14A
Notes:				Revision
1. All mitigation is subject to confirmation through a test run.				2
2. This is not a construction drawing and is intended for illustration purposes only.				

Client
 Coillte

Key	Wheel SPA	Body SPA	Load SPA	Indicative	Over-run	Over-sail

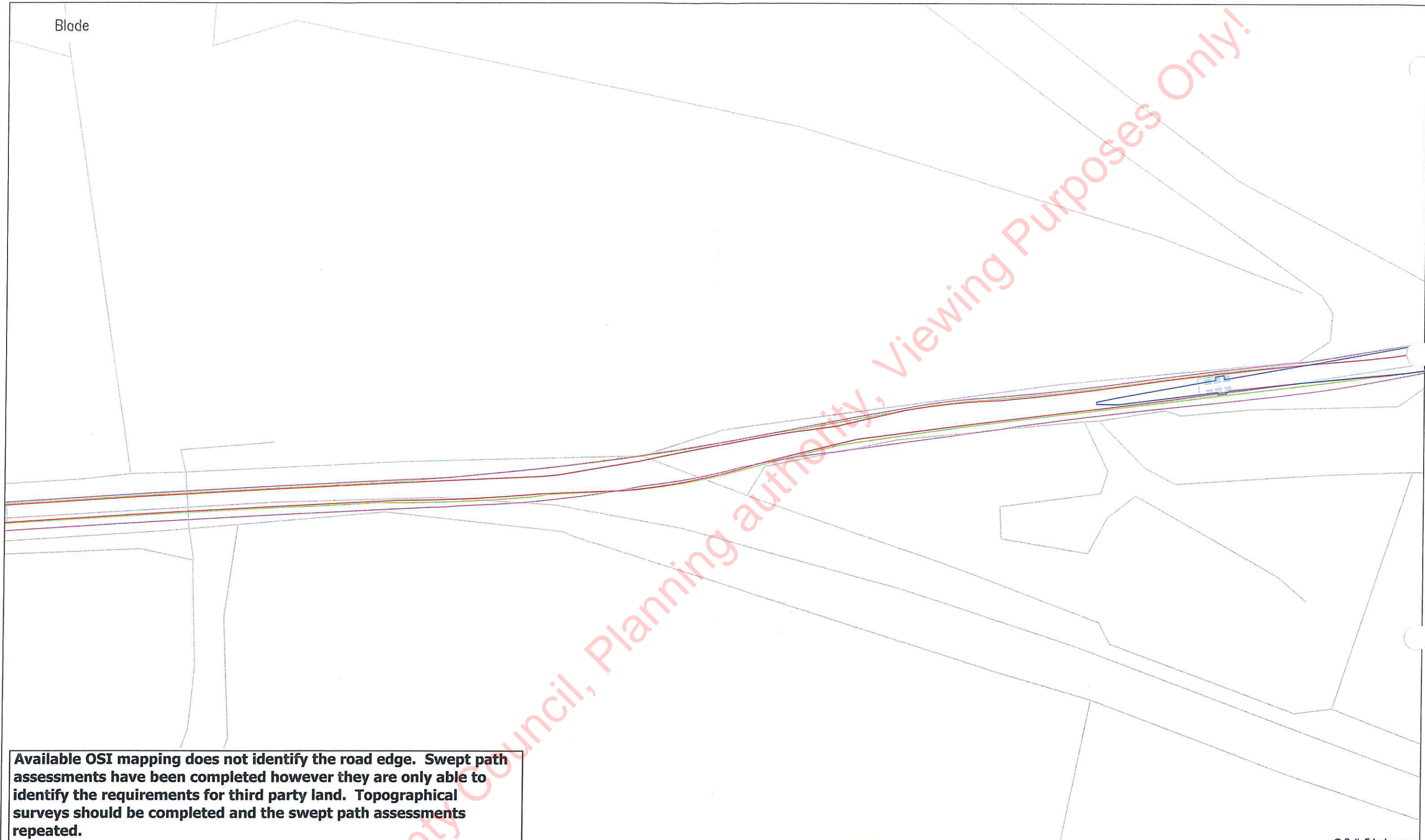


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	Project	Croaghaun Wind Farm	Drawn	JS	29/09/2020	Scale	1:1000 @ A3
	Drawing Title	Vestas V136 & Nordex N149 Top Tower	Designed	GB	28/09/2020	File No.	V136 Croaghaun SPA v1.dwg
SPA Location	L2026 Proposed Turning Point	Checked	GB	29/09/2020	Drawing Status	Draft	
Key		Drawing No.	SK14B	Point of Interest	52	Revision	2
				Notes:		1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.	

Blade



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Project
 Croaghaun Wind Farm



Drawn	JS	21/06/2020	Scale	1:500 @ A3
Designed	GB	21/06/2020	File No.	V136 Croaghaun SPA v1.dwg
Checked	GB	21/06/2020	Drawing Status	Draft
Point of Interest	49			

Client: Coillte

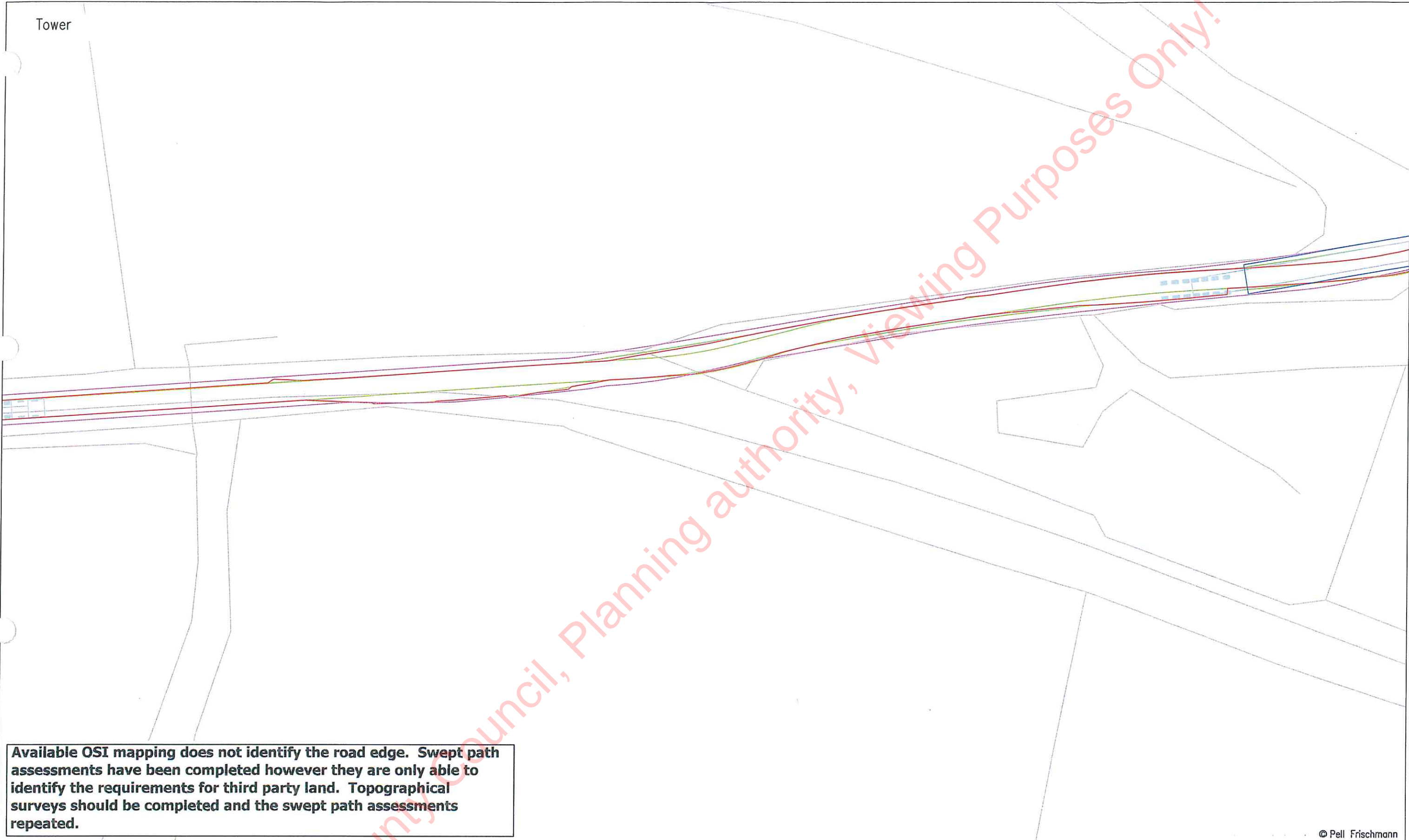
Key						
	Wheel SPA	Body SPA	Load SPA	Indicative	Over-run	Over-sail

Drawing Title
 Vestas V136 & Nordex N149 Top Tower

SPA Location
 L2026 Site Entrance

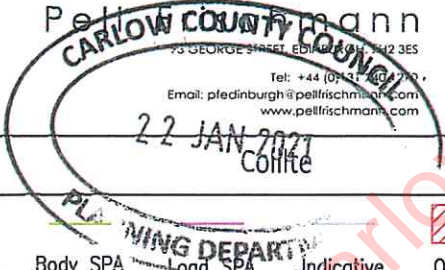
Drawing No. SK15	Notes: 1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.	Revision 1
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Tower



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 <p>Client Collite</p>	Project	Croaghaun Wind Farm	Drawn	JS	21/06/2020	Scale	Custom @ A3
	Drawing Title	Vestas V136 & Nordex N149 Top Tower	Designed	GB	21/06/2020	File No.	V136 Croaghaun SPA v1.dwg
	SPA Location	L2026 Site Entrance	Checked	GB	21/06/2020	Drawing Status	Draft
<p>Key</p> <ul style="list-style-type: none"> Wheel SPA Body SPA Load SPA Indicative Over-run Over-sail 	Drawing No.	SK15A	Point of Interest	49	Revision	1	Notes: 1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.