Technical Appendix 10: Traffic, Transport and Access

TA 10.1: Transport Assessment

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Pell Frischmann

Artfield Forest Wind Farm

Transport Assessment

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Prepared for:

Ramboll UK Limited
5th Floor
7 Castle Street
Edinburgh
EH2 3AH

Prepared by:

Pell Frischmann
93 George Street
Edinburgh
EH2 3ES

RAMBOLL

Pell Frischmann

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Pell Frischmann
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1 Introduction

1.1 Purpose of the Report

Pell Frischmann (PF) has been commissioned by Ramboll UK Limited (on behalf of Statkraft) to undertake a Transport Assessment (TA) for the proposed Artfield Forest Wind Farm (the Proposed Development), located to the east of New Luce, Galloway.

The report identifies the key transport and access issues associated with the Proposed Development, including the route for abnormal loads. The TA identifies where the Proposed Development may require mitigation works to accommodate the predicted traffic; however, the detailed design of these remedial works is beyond the agreed scope of this report.

1.2 Report Structure

Following this introduction, the TA report is structured as follows:

- Chapter Two describes the Proposed Development;
- Chapter Three reviews the relevant transport and planning policies;
- Chapter Four sets out the methodology used within this assessment;
- Chapter Five describes the baseline transport conditions;
- Chapter Six describes the trip generation and distribution of traffic in the study area;
- Chapter Seven summarises the traffic impact assessment;
- Chapter Eight considers mitigation proposals for development related traffic within the study network;
- Chapter Nine summarises the findings of the TA and outlines the key conclusions.

2 Site Background

2.1 Site Location

The location of the Proposed Development is illustrated in Figure 1. The Site covers an area of approximately 800 hectares (ha) and is located approximately 8 km northwest of Kirkcowan and 15 km west of Newton Stewart, Dumfries and Galloway.

Figure 1: Site Location Plan

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In summary, the Proposed Development will comprise:

- 12 three-bladed horizontal axis wind turbines;
- Permanent foundation and associated crane hardstanding at each turbine location;
- A network of on-site access tracks, with associated watercourse crossings, intervisible passing place and turning heads, connecting between turbines using both new and upgraded existing tracks;
- A control building and substation compound;
- An energy storage facility;
- Two temporary construction compounds and laydown area;
- Up to four borrow pits;
- A permanent anemometer mast or LiDAR compound including associated foundations and hardstanding;

- A main site entrance located to the west of Tarf Bridge, for use during construction and operation, designed to accommodate Abnormal Indivisible Loads (AIL) required for turbine component delivery;
- A secondary site access for use during construction traffic only;
- A network of underground cable arrays within the Site connecting the turbines to the onsite substation;
- Forestry felling and restocking and associated ancillary work; and
- Associated infrastructure works.

A complete description of the Proposed Development for the purposes of the EIA regulations is provided in EIAR Volume 2: Chapter 2.

2.2 Candidate Turbines

The Vestas V150 was selected by the Applicant as the candidate turbine for the purposes of this transport assessment. Details of the V150 turbine blade have been obtained directly from Vestas. The details of the components are summarised in Table 1.

Table 1: Turbine Size Summary

Component	Length (m)	Width (m)	Height (m)	Weight (t)
Blade	73.700	4.064	3.124	17.240
Base Tower	12.030	4.500	4.150	69.000
Mid Tower 1	16.240	4.150	4.150	70.000
Mid Tower 2	20.160	4.150	4.150	70.000
Mid Tower 3	26.880	4.150	4.150	65.000
Top Tower	27.000	4.150	3.650	47.000

The worst case loads for route assessment for the V150 sections are:

- Blade; and
- Mid Tower.

These sections were used for the subsequent swept path assessment of the proposed loads along the access route.

The selection of the final turbine model and specification will be subject to a commercial procurement process following consent of the application. The assumed dimensions may therefore vary slightly from those assumed as part of this assessment.

To provide an accurate assessment scenario based upon the known issues along the access route, it has been assumed that all blades would be carried on a Super Wing Carrier trailer to reduce the need for physical mitigation in constrained sections of the route.

Given the sizes of the proposed mid and top tower sections, these along with other loads such as the hub and nacelle housing would be carried on a six-axle step frame trailer. The base tower would be carried in a 4+7 clamp trailer.

Examples of the vehicles and trailers are shown in Figures 2 and 3.

Figure 2: Super Wing Carrier with Loaded Turbine Blade

Figure 3: Typical Tower Transport Trailer

3 Policy Context

3.1 Introduction

An overview of relevant transport planning policies has been undertaken and is summarised below for national and local government policies.

3.2 National Policy

3.2.1 National Planning Framework 3 (2014)

Scotland's National Planning Framework 3 (NPF3) sets the context for development planning in Scotland and provides a framework for the spatial development of Scotland as a whole. It sets out the Scottish Government's development priorities over the next 20 to 30 years and identifies national developments which support the development strategy. Scotland's third NPF was laid in the Scottish Parliament on 23 June 2014.

National Planning Policy Framework 4 (NPF4) is under preparation and will include all aspects of national planning policy as per the provisions of the Planning (Scotland) Act 2019. The NPF4 'Position Statement' was published for consultation on the 26th November 2020 and a consultation draft NPF4 will be issued in September 2021.

3.2.2 Planning Advice Note (PAN) 75

Planning Advice Note (PAN) 75: Planning for Transport provides advice on the requirements for Transport Assessments. The document notes that:

"… transport assessment to be produced for significant travel generating developments. Transport Assessment is a tool that enables delivery of policy aiming to integrate transport and land use planning."

"All planning applications that involve the generation of person trips should provide information which covers the transport implications of the development. The level of detail will be proportionate to the complexity and scale of the impact of the proposal...For smaller developments the information on transport implications will enable local authorities to monitor potential cumulative impact and for larger developments it will form part of a scoping exercise for a full transport assessment. Development applications will therefore be assessed by relevant parties at levels of detail corresponding to their potential impact."

3.2.3 Transport Assessment Guidance (2012)

Transport Scotland's (TS) Transport Assessment Guidance was published in 2012. It aims to assist in the preparation of TA for development proposals in Scotland such that the likely transport impacts can be identified and dealt with as early as possible in the planning process. The document sets out requirements according to the scale of development being proposed.

The document notes that a TA will be required where a development is likely to have significant transport impacts but that the specific scope and contents of a TA will vary for developments, depending on location, scale and type of development.

3.3 Local Policy

3.3.1 Dumfries & Galloway Local Development Plan 2 (2019)

Dumfries and Galloway Council (DGC) Local Development Plan 2 (LDP2) was adopted by the Council on 3 October 2019. It sets out a settlement strategy and spatial framework for how the Council foresees development occurring in the forthcoming twenty-year period.

LDP2 notes in Policy IN2 that:

"Impact on infrastructure. The extent to which the proposal addresses any detrimental impact on road traffic, adjacent trunk roads and telecommunications, particularly ensuring transmission links are not compromised.

Further details on this assessment process, including its application to smaller wind farms and more detailed development management considerations, are provided through supplementary guidance on Wind Energy Development."

The Council's Wind Energy Development: Development Management Considerations (February 2020) supplementary guidance also states in paragraphs H34 – H36 that:

"Where wind energy developments will involve abnormal load impact on public roads, developers and their contractors will be required, in consultation with the Council as roads authority, to produce an appropriate Traffic Management Plan. Developers will also be required to enter into a Section 75 or other legal agreement requiring any damage to the public roads to be made good at the developer's expense (the said agreement will require a 'before' and 'after' photographic survey of all public roads to be used by the developer and their contractors). Developers should also demonstrate how they have taken into consideration the impact on amenity for residents in close proximity to the transport routes used during the construction phase.

Developers should also carry out early consultation with the local roads and/or trunk roads officials and the Police in respect of abnormal load deliveries to the application site. Due to the size of the components being transported there can be issues in relation to the capacity of rural roads to cope with these loads.

The route of new access roads/tracks should be carefully selected and be as sensitive to the existing contours as is practical in relation to the use it will receive. Access tracks can be very visible over long distances and should be designed to limit any impacts which would be detrimental to the wider landscape context and setting. Existing tracks and access points should be used where possible."

3.4 Policy Summary

The Proposed Development can align with the stated policy objectives and the design of the Site and proposed mitigation measures will ensure compliance with national and local objectives.

4 Study Methodology

4.1 Introduction

There are three phases of the life of the Proposed Development. All three phases have been considered in this assessment and are as follows:

- The Construction Phase;
- The Operational Phase; and
- The Decommissioning Phase.

4.2 Project Phases – Transport Overview

Of all of the three phases, the construction phase is considered to have the greatest impact in terms of transport. Construction plant, bulk materials and turbine sections will be transported to the Site, these may potentially cause a significant increase in traffic on the study network.

The decommissioning phase involves fewer trips on the network than the construction phase, as elements of infrastructure are likely to be left in place, adding to local infrastructure that can potentially be used for further agricultural or leisure uses in the future.

The operational phase is restricted to occasional maintenance operations which generate significantly lower volumes of traffic that are not considered to be in excess of daily traffic variation levels on the road network.

It should be noted however the construction effects are short lived and transitory in nature, whilst the operational phase assessment has been assumed to be based on a typical launch event.

4.3 Scoping Discussions

The applicant submitted a request for scoping opinion to the Scottish Ministers in respect of the Environmental Impact Assessment which included a section considering traffic and transport. A full review of that scoping opinion and other correspondence relating to the scope of the study including pre-application advice is provided in the Traffic and Transport Chapter of the EIA (EIAR Volume 2: Chapter 10).

5 Baseline Conditions

5.1 Access Arrangement

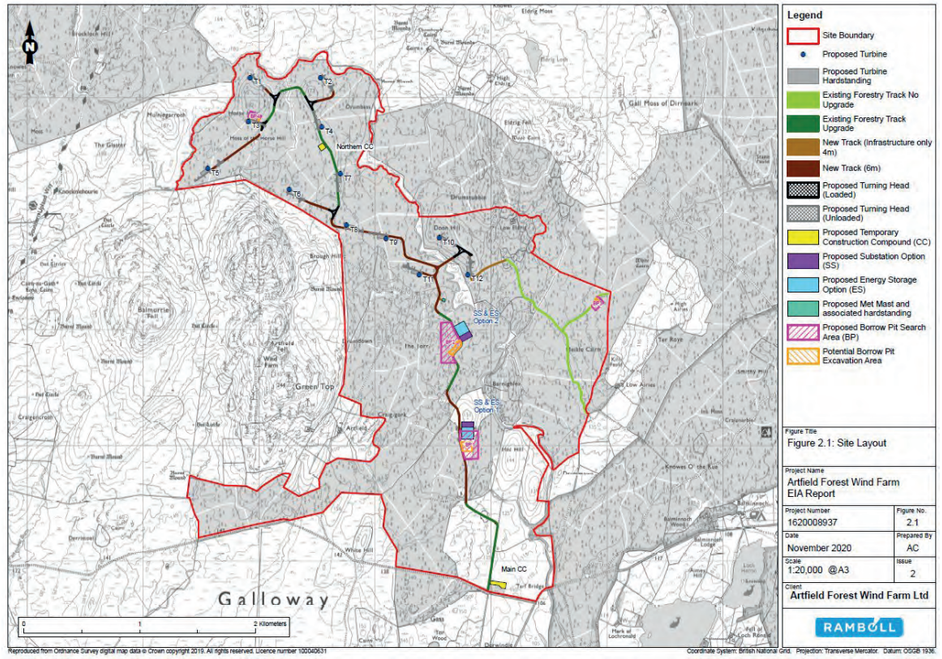
The Proposed Development would be accessed directly from an upgraded access junction to the west of Tarf Bridge.

The access junction would be designed to accommodate all predicted loads and traffic for both the construction and operational phases of the Proposed Development.

A secondary access would be taken from an existing forestry access junction and would be used to allow access to one borrow-pit on the east of the Site. No material exports between this borrow-pit and the main site access junction are proposed as internal links will be established across the Site.

The proposed access and track layout are illustrated in Figure 4.

Figure 4: Proposed Site Layout



5.2 Study Area Determination

Scoping discussion have been held with DGC and TS on likely scope of the TA to establish a study area.

Strategic access to the Site is provided by the A75 trunk road running to the south of the Site. The A75 is the principal trunk road for east – west access in Dumfries and Galloway and connects Stranraer and the Irish ferry services with the M74 near Gretna.

Local road access to the Site is made available via the C22w and C3w roads that link the A75 to the Site via a junction to the north of Kirkcowan, Ballochadee and Ballminoch. Both roads are minor links and operated by Dumfries and Galloway Council.

Access to the Site is also achievable via Glen Luce, with access via Main Street, North Street and the C3w. Access is only suitable for cars and Light Goods Vehicles (LGV). Abnormal load access is feasible via Carscreugh Wind Farm (located to the north east of Glen Luce village) and the C3w.

Access for construction materials would be from the A75, with access taken using the C22w and C3w.

Abnormal loads associated with the wind turbines have two access options. Both share a common access from King George V Docks in Glasgow to the A75 via the M8, M74, M6 (to allow a U turn at either junction 44 or 42) and then westbound on the A75.

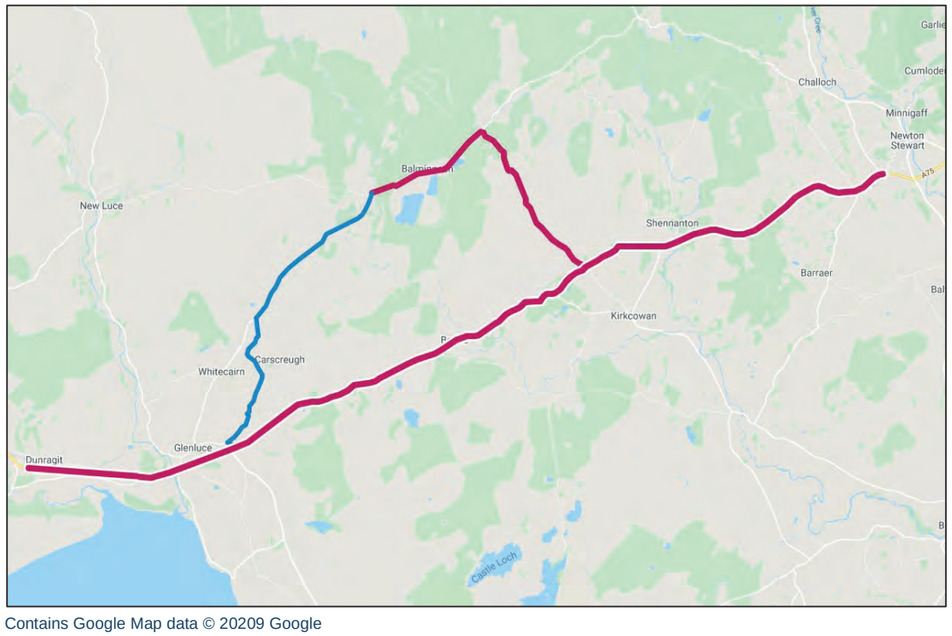
Option 1 for AIL loads is via the C22w and C3w. Option 2 would be via Carscreugh Wind Farm and the C3w (shown in blue in Figure 5). The final choice on access route from the A75 will be agreed with DGC post consent and secured by planning condition. The attached Route Survey Report (Appendix A) assesses both access options.

The study area for this assessment is as follows:

- The A75 in the vicinity of Glen Luce and Kirkcowan;
- The C22w between the A75 and its junction with the C3w; and
- The C3w between its junction with the C22w and Glen Luce.

The study area network is illustrated in Figure 5.

Figure 5: Assessment Study Area



Contains Google Map data © 20209 Google

5.3 Pedestrian and Cyclist Networks

The only Core Paths recorded by DGC are the Three Lochs route that circles Loch Heron at Balminnoch and Glen Wood in Glen Luce, that joins the Main Street with the Primary School. Neither Core Path cross the public road and appear to be primarily leisure walks according to information on the DGC's Core path plan.

The Sustrans National Cycle Route (NCR) has been consulted and indicates that none of the roads in the study area form part of the NCR or advisory link to it. There are no recommended cycle routes detailed in DGC Go Smart website or online maps.

5.4 Road Access

Access to the Site would be taken directly from the C3w via a new access priority junction. The junction would be surfaced and constructed so that the junction bellmouth would be to adoptable standards. The remaining access tracks within the Site would be private.

The access junction would have the first 10m surfaced in a bituminous macadam and appropriate junction markings and reflective junction markers would be provided at the access bell-mouth. The throat of the junction would be widened to a minimum of 5.5m to ensure that opposing vehicles can pass in safety.

Visibility splays of 160m in both directions with a set-back distance of 4.5m from the centre of the junction would be provided.

The C3w and C22w are local access roads and are both maintained and operated by DGC.

The A75 is the main trunk road in the area and connects Stranraer to the M74 at Gretna. The road is operated on behalf of Transport Scotland by Amey. Within the study area, the road is subject to a 60mph speed limit in the main.

5.5 Existing Traffic Conditions

It was not possible to collect recent traffic count data for the study area due to the impact of Covid 19. In order to assess the impact of construction traffic on the study area, traffic survey data was obtained for the A75 from the UK Government Department for Transport (DfT) database.

Two A75 count sites were used, both being located on either side of Kirkcown. Traffic data for the C22w and C3w was obtained from the Gass Wind Farm Transport Assessment. The Gass Wind Farm application covered the area that the Proposed Development application covers and the public data was publicly available.

The C22w and C3w traffic counts were taken from the 2013 Transport Assessment report and factored to a common baseline year of 2019 in common with the DfT traffic flows.

The use of the Gass Wind Farm Transport Assessment traffic flows is not ideal, due to the age of the traffic flows. The nature of both roads would suggest that traffic flows are unlikely to have changed markedly and if these flows under report the current traffic levels, this will result in a more robust review of traffic impact on either road.

The traffic count data allows assessments to be made in areas where sensitive receptors on the access route would be located. A full receptor sensitivity and effect review is prepared in the Traffic and Transport Chapter of the EIA Report (EIAR Volume 2: Chapter 11).

The traffic counters allowed the traffic flows to be split into vehicle classes and the data have been summarised into cars/ light goods vehicles (Lights) and heavy goods vehicles (HGVs) (all goods vehicles >3.5 tonnes gross maximum weight).

Table 2 summarises the 24-hour average daily traffic data collected at the count sites.

Table 2: 24-hour Average Traffic Data

Survey Location	Cars & Lights	HGV	Total
A75 East of Kirkcowan	3804	594	4398
A75 West of Kirkcowan	3470	645	4115
C22w	122	7	129
C23w	75	1	76

5.6 Accident Review

Road traffic accident data for the five-year period commencing 01 January 2015 through to the 31 December 2019 was obtained from the online resource crashmap.co.uk which uses data collected by the police about road traffic crashes occurring on British roads.

The statistics are categorised into three categories, namely “Slight” for damage only incidents, “Serious” for injury accidents and “Fatal” for accidents that result in a death.

A summary analysis of the incidents indicates that:

- 16 accidents were recorded within the study area roads within the five year period;
- Of those 16 accidents, 12 were classed as “Slight”, three as “Serious” and one as “Fatal”. The “Fatal” accident involved a motorcyclist in collision with a car;
- All accidents occurred on the A75 between Glenluce and Shennanton. No accidents were recorded on the C22w or C3w in the last year period;
- All accidents involved a car. HGVs were only involved in four “Slight” accidents;
- All three “Serious” accidents involved motorcyclists as a casualty. One “Slight” accident was recorded with a child casualty;
- No accidents involved a cyclist as a casualty or pedal cycle as a vehicle in collision. One “Serious” and one “Slight” accident involved a young driver.

No accidents occurred within 700m of the A75 / C22w junction. The analysis indicates that the vast majority of recorded accidents are categorised as being “Slight”.

5.7 Baseline Traffic Conditions

Construction of the project could commence during 2023 if consent is granted and is anticipated to take up to 18 months depending on weather conditions and ecological considerations.

To assess the likely effects during the construction and typical operational phase, base year traffic flows were determined by applying a National Road Traffic Forecast (NRTF) low growth factor to the surveyed traffic flows.

The NRTF low growth factor for 2019 to 2023 is 1.027. These factors were applied to the 2019 survey data to estimate the 2023 Base traffic flows shown in Table 3. This will be used in the Construction Peak Traffic Impact Assessment.

Table 3: Baseline 2023 24-hour Average Traffic Data

Survey Location	Cars & Lights	HGV	Total
A75 East of Kirkcowan	3907	610	4517
A75 West of Kirkcowan	3564	662	4226
C22w	125	8	133
C23w	77	1	78

6 Trip Generation and Distribution

6.1 Construction Phase

6.1.1 Trip Derivation

During the 18-month construction period, the following traffic will require access to the to the Site:

- Staff transport, in either cars or staff minibuses;
- Construction equipment and materials, deliveries of machinery and supplies such as concrete and crushed rock; and
- Abnormal loads consisting of the wind turbine sections and a heavy lift crane.

Average monthly traffic flow data were used to establish the construction trips associated with the Site based on the assumptions detailed in the following sections.

Please note that in all of the traffic generation and impact assessment reviews, rounding errors may occur. Numbers displayed are rounded up or down to the nearest whole number, however the calculations are undertaken to at least two decimal points

6.1.2 Construction Staff

Staff would arrive in non-HGV vehicles and where possible will be encouraged to car share. The workforce onsite will depend on the activities undertaken, but, based on previous wind farm construction site experience for a project of this scale which suggests three staff per turbine during the short peak period of construction is likely, the maximum number of staff expected onsite could be around 36 per day.

For the purposes of estimating traffic movements, it was assumed that 40% of staff would be transported by minibus and 60% would arrive by car (single car occupancy was assumed as the worst case at this stage with potentially fewer movements through car sharing).

Based on these assumptions, staff transport cars and light vehicles would account for a maximum of 20 vehicle journeys per day during the peak period of construction.

6.1.3 Abnormal Indivisible Load Deliveries

The turbines are broken down into components for transport to the Site. The nacelle, blade and tower sections are classified as AIL due to their weight, length, width and height when loaded. For the purposes of the report, the 'worst case' numbers of components requiring transport are illustrated in Table 4.

In addition to the turbine deliveries, two high capacity erection cranes would be needed to offload a number of components and erect the turbines. The cranes are likely to be mobile cranes with a capacity up to 1,000 tonnes that are escorted by boom and ballast trucks to allow full mobilisation onsite. Smaller erector cranes would also be present to allow the assembly of the main cranes and to ease the overall erection of the turbines.

Escort vehicles would accompany the AIL convoys to support the traffic management measures. Up to four vehicles would be deployed and it is assumed that three turbine components would be delivered per convoy. This would result in 43 convoys on the network, with a total of 128 escort journeys (64 trips in and 64 trips out).

The escort vehicles have been assumed to be police cars and light goods vehicles. Motorcycles may be deployed, depending upon Police resources.

Table 4: Turbine Components

Component	Number of Components per turbine
Rotor Blades	3
Tower Sections	4
Nacelle	1
Hub	1
Drive Train	1
Nose Cone	1
Transformer	1
Ancillary	1
Site Parts	0.2

6.1.4 General Deliveries

Throughout the construction phase, general deliveries will be made to the Site via HGV. These would include fuel, site office supplies and staff welfare. At the height of construction, it is assumed that up to 40 journeys to site are made (20 in and 20 out) per month.

6.1.5 Material Deliveries

Various materials will need to be delivered to site to form the Site based infrastructure. At the outset, HGV deliveries will deliver plant and initial material deliveries to the Site to enable the formation of the site compound and to delivery construction machinery.

The Site is large enough to warrant on-site batching of concrete. All turbine and substation foundation concrete will be mixed on site. As such this assessment assumes deliveries of cement powder and water[1] by HGV tankers. Sand and aggregate will be delivered by tipper HGV and is expected to originate at quarries located to the southeast of Glen Luce.

The total volume of concrete required on site is estimated to be 16,076 m^3. The individual deliveries associated with the raw materials have been estimated and result in inbound trips of 35 cement tankers, 509 sand and aggregate tippers and 204 water tankers.

Foundation reinforcement calculations for the turbine bases and the substation are detailed in Table 5.

[1] The potential for on-site water abstraction will be explored further post-consent in full compliance with The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended), however for the purpose of making a reasonable worst case project in this assessment, it has been assumed all water for concrete batching will be transported to the site.

Table 5: Reinforcement Deliveries

Element	Weight / installation (t)	Total Weight (t)	Lorry Capacity (t)	Inbound Trips	Total Journeys
Turbine Foundation	100	1200	30	40	80
Substation / Control Building & Met Mast Foundations	22	20	30	1	2

The onsite access roads will be constructed from crushed rock and the material would be won from the Site via borrow pits or when creating the cuttings and other earthworks. This material would also be used to help create the crane pads.

The access roads would generally be between 4 and 6m in width and would be designed to accommodate 13 tonne axle loads. In addition to the roads, crane pads will be constructed to enable the turbine erection process. The roads, crane pads and compounds will require geotextile in the foundations.

In scoping, DGC requested that the assessment consider that all aggregate for tracks be imported to the Site to provide a worst case. This is an overly robust assumption as the nearby forestry road network has been constructed using stone won on the boundary of the Site. As multiple borrow-pits are to be provided to supply the Site and the quality of material has been historically tested, it is not considered reasonable to assume 100% of material will be imported, when the actual import will be circa 10% (to allow access to the proposed borrow-pits). To provide a compromise assessment that is robust, the TA has assumed that 60% of all track and hardstand materials is imported to the Site from the nearby quarry at Glen Luce. The subsequent volume calculation is detailed in Table 6.

Table 6: Imported Aggregate Material

Element	Volume / installation (m3)	Total Weight (t)	Lorry Capacity (m3)	Inbound Trips	Total Journeys
Initial Stage Track Deliveries	45,592	100,301	20	5016	10032

Geotextile will be delivered to the Site in rolls. 95 large rolls would be required at the Site and would be delivered by HGV.

Cables will connect each turbine to the internal substation and control building. Trip estimates for the cable materials are provided below in Tables 8, 9 and 10.

Three cables are to be provided within each cable trench and would be backfilled with cable sand. Geotextiles would be used to shield the trench and ducting would be used to protect the cable when it runs under roadways. The cable materials would be likely sourced from sites located on the A75 corridor, to the southeast of the Site and would be transported on the C22w and C3w to the Site.

Table 7: Cable Trip Estimate

Element	Total Cable Length (m)	Length per Drum (m)	Number of Drums	Inbound Trips	Total Journeys
Cables	38694	500	77	9	18

Table 8: Cable Sand Trip Estimate

Element	Volume / installation (m3)	Total Weight (t)	Lorry Capacity (t)	Inbound Trips	Total Journeys
Cable Sand	4,353	6,965	20	349	698

Table 9: Cable Ducting Trip Estimate

Element	Weight / length (m)	Length per Drum (m)	Number of Drums	Inbound Trips	Total Journeys
Ducting	25	5	5	1	2

A substation and control building will be constructed on the Site. This will require deliveries of building materials and structural elements and would result in 46 journeys. Storage battery deliveries will result in a further 50 HGV journeys.

Timber will need to be extracted from the Site to allow construction of elements of the required infrastructure. A total of 39,808 tonnes of timber and timber products will need to be exported from the Site resulting in 3,982 HGV journeys.

To facilitate the construction of the full onsite track network, one on-site bridge and five culverts will need to be constructed or improved. A total of 78 HGV journeys has been estimated for these works.

The resulting traffic generation estimates have been plotted onto the indicative construction programme to illustrate the peak journeys on the network. Table 10 illustrates the trip generation throughout the construction programme.

The peak of construction occurs in Month 8 with 142 journeys (20 Car / Lights and 122 HGV journeys).

Table 10: Construction Traffic Profile

Activity	Month																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Site Establishment & Reinstatement				100	20										50		20	50
General Site Deliveries				40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Access Track Works					1672	1672	1672	1672	1672	1672								
Timber Extraction	498	498	498	498	498	498	498	498										
Bridge Works						39	39											
Reinforcement Deliveries								41		41								
Concrete Materials								374	374	374	374							
Cable & Ducting										9		9						
Cabling Sand										140	140	140	140	140				
Geotextile Deliveries				9				9										
Substation & Battery Deliveries								23	23						25	25		
Cranage											24					24		
AIL Deliveries											79	79	79	79				
AIL Escorts											32	32	32	32				
Commissioning															22	22	22	22
Staff	114	114	158	158	440	440	440	440	440	440	440	440	440	440	440	440	396	220
Total HGV	498	498	498	647	2230	2249	2249	2658	2109	2276	657	268	259	259	115	89	60	90
Total Cars / LGV	114	114	158	158	440	440	440	440	440	440	472	472	472	472	462	462	418	242
Total Movements	612	612	656	806	2670	2689	2689	3098	2549	2716	1129	740	731	731	577	551	478	332
Total HGV per Day	23	23	23	29	101	102	102	122	96	103	30	12	12	12	5	4	3	4
Total Cars / LGV per Day	5	5	7	7	20	20	20	20	20	20	21	21	21	21	21	21	19	11
Total per Day	**28**	**28**	**30**	**37**	**121**	**122**	**122**	**142**	**116**	**123**	**51**	**34**	**33**	**33**	**26**	**25**	**22**	**15**

6.1.6 Distribution of Construction Trips

The distribution of development traffic on the network would vary depending on the types of loads being transported. The assumptions for the distribution of construction traffic during the peak months would be as follows:

All construction traffic enters the Site via the site access junction on the C3w.

- Deliveries associated with the batching of concrete on site will arrive via the A75, C22w and C3w. No bulk material deliveries will pass through Glen Luce;
- Sand and aggregate for use in the on-site batching plant will be sourced from local quarries. For the purposes of the assessment, it is assumed that all material will be taken from the quarry to the south of Glen Luce. The Balance of Plant (BoP) contractor will confirm final quarry and material sourcing with DGC in the Construction Traffic Management Plan (CTMP);
- HGV deliveries associated with the HV electrical installation, control buildings, batteries, etc will arrive via the A75 from the east;
- Staff working at the Site are likely to be based locally. It is assumed that 50% will come from Stranraer and its surrounding area and 50% from Newton Stewart. Staff based to the west of the Site could access the Site via Glen Luce and the C3w (10 journeys per day – 5 inbound and 5 outbound); and
- General site deliveries will be via the A75, C22w and C3w to the Site.

Loads relating to the turbine components could be delivered on ether access route described in Section 5.2.

Following the distribution and assignment of traffic flows to the study area network, the resultant daily traffic during the peak of construction are summarised in Table 11.

Table 11: Peak Construction Traffic

Survey Location	Cars & Lights	HGV	Total
A75 East of Kirkcowan	0	28	28
A75 West of Kirkcowan	10	94	104
C22w	10	122	132
C23w	10	122	132

6.2 Committed Developments

A review of surrounding wind farm developments has been undertaken. Whilst Gass Wind Farm has planning consent, this has now lapsed and the Proposed Development application will replace it and as such there is no need to consider this application further.

There are no further wind farm applications that would be accessed from either the C22w or C3w that have planning permission at the time of writing. One other wind farm application has consent, namely Barlockhart Extension, however this is located to the south of the Site and accessed from the A75. Given the size of this application and its location, there is unlikely to

be any significant levels of traffic generated on the A75 that should be considered in the Proposed Development application.

Other wind farm developments in the area such as Airies II Wind Farm are with scoping, along with potential electrical distribution transmission improvements but none are consented at the time of writing. As such, these cannot be considered as committed schemes and cannot be included in the development assessment as they may be refused or may not progress beyond scoping.

Other nearby developments such as Stranoch 2, Kilgallioch Extension and Chirmorie are all being access using different access routes and as such their respective construction traffic will have no effect on the study area for Artfield Forest.

Should other developments located close to the Proposed Development be consented, any crossover of traffic with the Proposed Development flows would be addressed via a traffic management plan. The inclusion of further traffic flows in the base line (i.e. including non-consented traffic) will dilute the potential impact that the Artfield Forest Wind farm proposals will have. As such, the approach taken is considered to be an overly robust assessment.

No other significant planning applications have been consented and as such, there are no committed development flows to be included in the assessment.

6.3 Decommissioning Phase

Prior to decommissioning of the Site, a traffic assessment would be undertaken and appropriate traffic management procedures followed.

The decommissioning phase would result in fewer trips on the road network than the construction or operational phases as it is considered likely that elements of infrastructure such as access tracks would be left in place and structures may be broken up onsite to allow transport by a reduced number of HGVs.

7 Traffic Impact Assessment

7.1 Construction Impact

The peak month traffic data was combined with the future year (2023) traffic data to allow a comparison between the baseline results to be made. The increase in traffic volumes is illustrated in percentage increases for each class of vehicle. This is illustrated in Table 12.

Table 12: 2023 Peak Month Daily Traffic Data

Survey Location	Cars & Lights	HGV	Total Traffic	Cars & Lights % Increase	HGV % Increase	Total Traffic % Increase
A75 East of Kirkcowan	3907	638	4545	0.0%	4.6%	0.6%
A75 West of Kirkcowan	3574	756	4330	0.3%	14.2%	2.5%
C22w	135	130	265	8.0%	1602.5%	99.5%
C23w	87	123	210	12.9%	11217.4%	168.6%

The total traffic movements are not predicted to increase by more than 30% on the A75.

The total traffic movements will increase significantly on both the C22w and C3w. Whilst this increase is statistically significant, it is generally caused by the relatively low current traffic flows. At the peak of construction, each road will have an additional 66 inbound movement per day. This represents an average of an additional eight inbound trips every hour during construction activities, which is not considered significant in operational terms.

It should also be noted the construction phase is transitory in nature and the peak of construction activities is short- lived.

A review of existing road capacity has been undertaken using the Design Manual for Roads and Bridges, Volume 15, Part 5 “The NESA Manual”. The theoretical road capacity has been estimated for each of the road links for a 12-hour period that makes up the study area. The results are summarised in Table 13.

Table 13: 2023 Daily Traffic Data

Location	2023 Baseline Flow	2023 Base + Development Flows	Theoretical Road Capacity (12hr)	Spare Road Capacity %
A75 East of Kirkcowan	4517	4545	28800	84.22%
A75 West of Kirkcowan	4226	4330	28800	84.96%
C22w	133	265	19200	98.62%
C23w	78	210	19200	98.90%

The results indicate there are no road capacity issues with the Proposed Development and ample spare capacity exists within the trunk and local road network to accommodate construction phase traffic.

8 Proposed Traffic Mitigation Measures

8.1 Construction Phase

The following measures would be implemented through a CTMP during the construction phase. The CTMP would be agreed with DGC prior to construction works commencing:

- Where possible the detailed design process would minimise the volume of material to be imported to the Site to help reduce HGV numbers. This will include more intensive use of the borrow-pits than has been assumed in the assessment;
- A site worker transport and travel arrangement plan, including transport modes to and from the worksite (including pick up and drop off times);
- A Traffic Management Plan;
- All materials delivery lorries (dry materials) should be sheeted to reduce dust and stop spillage on public roads;
- Specific training and disciplinary measures should be established to ensure the highest standards are maintained to prevent construction vehicles from carrying mud and debris onto the carriageway;
- Wheel cleaning facilities may be established at the site entrance, depending the views of DGC;
- Normal site working hours would be limited to between 0700 and 1900 (Monday to Friday and 0700 and 1600 (Saturday) though component delivery and turbine erection may take place outside these hours;
- Appropriate traffic management measures would be put in place on the C22w and C3w to avoid conflict with general traffic, subject to the agreement of the roads authority. Typical measures would include HGV turning and crossing signs and/ or banksmen at the site access and warning signs;
- A temporary speed limit on the C22w and C3w of 20mph long the frontage of the Three Lochs Holiday Park and the provision of a signed temporary pedestrian crossing facility;
- The development of a passing place strategy with DGC (and other wind farm developers in the area) to agree a series of passing places to ease severance and vehicle flow movements on the C22w and C3w. This should be developed in consultation with DGC (as per their scoping note) and can be secured and delivered by planning condition once the exact scope and needs of other developers (including timber traffic and other development interests) have been confirmed. The passing place areas would only be delivered within the limits of the adopted road boundary;
- Provide construction updates on the project website and or a newsletter to be distributed to residents within an agreed distance of the Site.
- All drivers would be required to attend an induction to include:
  - A tool box talk safety briefing;
  - The need for appropriate care and speed control;

  - A briefing on driver speed reduction agreements (to slow site traffic at sensitive locations through the villages); and
  - Identification of the required access routes and the controls to ensure no departure from these routes.

DGC may require an agreement to cover the cost of abnormal wear and tear on the local road network leading from the A75 to the proposed main site access junction.

Video footage of the pre-construction phase condition of the abnormal loads access route and the construction vehicles route would be recorded to provide a baseline of the state of the road prior to any construction work commencing. This baseline would inform any change in the road condition during the construction stage of the Proposed Development. Any necessary repairs would be coordinated with the Roads Authority. Any damage caused by traffic associated with the Proposed Development, during the construction period that would be hazardous to public traffic, would be repaired immediately.

Any damage to road infrastructure caused directly by construction traffic would be made good, and street furniture that is removed on a temporary basis would be fully reinstated.

There would be a regular road edge review and any debris and mud would be removed from the public carriageway to keep the road clean and safe during the initial months of construction activity, until the construction junction and immediate access track works are complete.

8.2 Abnormal Load Management Plan

There are a number of traffic management measures that could help reduce the effect of abnormal load convoys.

All abnormal load deliveries would be undertaken at appropriate times (to be discussed and agreed with the relevant roads authorities and police) with the aim to minimise the effect on the local road network. It is likely that the abnormal load convoys would travel in the early morning periods, before peak times while general construction traffic would generally avoid the morning and evening peak periods.

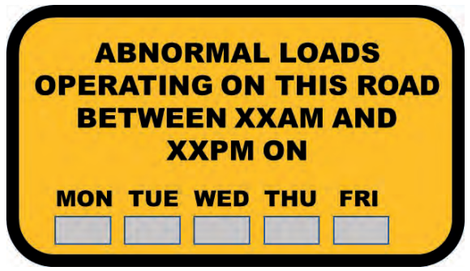
The majority of potential conflicts between construction traffic and other road users will occur with abnormal load traffic. General construction traffic is not likely to come into conflict with other road users as the vehicles are smaller and road users are generally more accustomed to them.

Potential conflicts between the abnormal loads and other road users can occur at a variety of locations and circumstances. The main potential conflicts are likely to occur:

- On the A75 where the loads may straddle the centre line, where fast moving oncoming traffic may be encountered, etc.;
- Where traffic turns at a road junction, requiring other traffic to be restrained on other approach arms; and
- In locations where high speeds of general traffic are predicted.

Advance warning signs would be installed on the approaches to the affected road network. Information signage could be installed to help assist drivers and an example is illustrated in Figure 6. Flip up panels (shown in grey) would be used to mask over days where convoys would not be operating. When no convoys are moving, the sign would be bagged over by the Traffic Management contractor.

Figure 6: Example Information Sign



This signage will assist in helping improve driver information and allow other road users to consider alternative routes or times for their journey (where such options exist).

The location and numbers of signs would be agreed post consent and would form part of the wider Traffic Management Proposal for the project.

The Abnormal Load Transport Management Plan would also include:

- Procedures for liaising with the emergency services to ensure that police, fire and ambulance vehicles are not impeded by the loads. This is normally undertaken by informing the emergency services of delivery times and dates and agreeing communication protocols and lay over areas to allow overtaking;

- Liaison with the South of Scotland Timber Traffic Officer to minimise disruption and impacts for timber traffic on the network;

- A protocol for working with local businesses to ensure the construction traffic does not interfere with deliveries or normal business traffic; and

- Proposals to establish a construction liaison committee to ensure the smooth management of the project / public interface with the applicant, the construction contractors, the local community, and if appropriate, the police forming the committee. This committee would form a means of communicating and updating on forthcoming activities and dealing with any potential issues arising.

8.3 Public Information

Information on the turbine convoys would be provided to local media outlets such as local papers and local radio to help assist the public.

Information would relate to expected vehicle movements from the port of entry through to the site access junction. This will assist residents becoming aware of the convoy movements and may help reduce any potential conflicts.

The applicant would also ensure information was distributed through its communication team via the project website, local newsletters and social media.

8.4 Convoy System

A police escort would be required to facilitate the delivery of the predicted loads. The police escort would be further supplemented by a civilian pilot car to assist with the escort duty. It is proposed that an advance escort would warn oncoming vehicles ahead of the convoy, with one escort staying with the convoy at all times. The escorts and convoy would remain in radio contact at all times where possible.

The abnormal loads convoys would be no more than three AILs long, or as advised by the police, to permit safe transit along the delivery route and to allow limited overtaking opportunities for following traffic where it is safe to do so.

The times in which the convoys would travel will need to be agreed with Police Scotland who have sole discretion on when loads can be moved.

8.5 Operational Phase Mitigation

Site entrance roads will be well maintained and monitored during the operational life of the development. Regular maintenance will be undertaken to keep the site access track drainage systems fully operation and to ensure there are no run-off issues onto the public road network.

9 Summary & Conclusions

This report was commissioned by Ramboll UK Limited, on behalf of Statkraft to provide a Transport Assessment of the Proposed Development located is located approximately 8 km northwest of Kirkcowan.

Existing traffic data established a base point for determining the impact during the construction phase and was factored to future levels to help determine the effect of construction traffic on the local road network.

The construction traffic would result in a temporary increase in traffic flows on the road network surrounding the Proposed Development. The maximum traffic effect associated with construction of the Proposed Development is predicted to occur in Month 8 of the programme. During this month, an average of 122 HGV movements is predicted per day and it is estimated that there would be a further 20 car and light van movements per day to transport construction workers to and from the Site.

A series of mitigation measures and management plans have been proposed to help mitigate and offset the impacts of both the construction and operational phase traffic flows.

No link capacity issues are expected on any of the roads assessed due to the additional movements associated with the Proposed Development. The effects of construction traffic are temporary in nature and are transitory.

Appendix A
AIL Route Survey Report

Pell Frischmann

Artfield Wind Farm

V150 Abnormal Indivisible Load Route Survey

March 2021
103864

Revision Record					
Rev	**Description**	**Date**	**Originator**	**Checker**	**Approver**
A	Draft	05/08/2020	J Stirrat	G Buchan	G Buchan
B	Alteration to access location	01/03/2021	T Lockett	G Buchan	G Buchan

Prepared for:

Ramboll
5th Floor
7 Castle Street
Edinburgh
EH2 3AH

Prepared by:

Pell Frischmann
93 George Street
Edinburgh. EH2 3ES

RAMBOLL

Pell Frischmann

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1 Introduction

1.1 Purpose of the Report

Pell Frischmann (PF) has been commissioned by Ramboll to undertake a survey of the approved delivery route for wind turbine Abnormal Indivisible Loads (AIL) associated with the construction and development of Artfield Wind Farm, located to the northwest of Kirkcowan, Galloway.

The RSR has been prepared to help inform Ramboll on the likely issues associated with the development of the site with regards to off-site transport and access for AIL traffic. 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 Ramboll at this point in time.

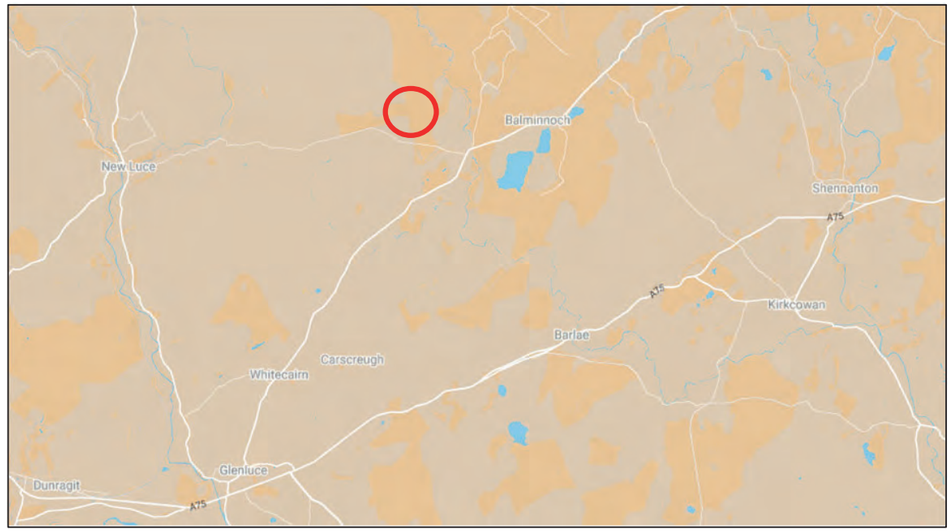
It is the responsibility of the wind turbine supplier to ensure that the entirety of the proposed access route is suitable and meets with their satisfaction. The turbine supplier will be responsible for ensuring that the finalised proposals meet with the appropriate levels of health and safety consideration 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 northwest of Kirkcowan, Galloway. Figure 1 illustrates the general site location.

Figure 1: Site Location Plan



2.2 Candidate Turbines

Ramboll have indicated that they wish to consider the use of a Vestas V150 turbine at a tip height of 180m.

Details of the V150 turbine blades and tower have been obtained directly from Vestas. The details of the components are summarised in Table 1.

Table 2-1: Turbine Size Summary

Component	Length (m)	Width (m)	Height (m)	Weight (t)
Blade	73.700	4.064	3.124	17.240
Base Tower	12.030	4.500	4.150	69.000
Mid Tower 1	16.240	4.150	4.150	70.000
Mid Tower 2	20.160	4.150	4.150	70.000
Mid Tower 3	26.880	4.150	4.150	65.000
Top Tower	27.000	4.150	3.650	47.000

A combined tower featuring the base width and the length of the worst case mid towers has been used for the purposes of the assessment.

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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 Superwing trailer to reduce the need for mitigation in constrained sections of the route.

Towers would be carried in a 4+7 clamp adaptor style trailer, whereas loads such as the hub, nacelle housing and top towers would be carried on a six-axle step frame trailer.

Figure 2: Superwing Carrier Trailer

Figure 3: Tower Trailer

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3 Access Route Review

3.1 Port of Entry

The proposed Port of Entry (POE) is KGV Docks in Glasgow. The port is the closest suitable port to site and as such is in line with the Government's "Water Preferred" policy towards AIL movements.

The port has been used by renewables deliveries in the past for a number of wind farms, including Kype Muir, Kilgallioch, and Clyde wind farms.

The port has sufficient quay and storage space and is well located for the strategic trunk road network.

3.2 Proposed Access Route

The proposed access route from KGV Docks is as follows:

- Components exit KGV Docks in Glasgow onto Kings Inch Drive;
- Continue along Kings Inch Drive before turning left onto the M8 slip road, Mayo Avenue;
- Merge onto the M8 at Junction 25A;
- Continue east along the M8 before joining the M74;
- Continue south along M74 joining the M6;
- Leave the M6 southbound at Junction 42 and proceed around the roundabout;
- Re-join the M6 northbound and proceed north until Junction 22; and
- Turn onto the A75 westbound and proceed west.

For Route Option 1 loads will:

- Remain on the A75 until turning right northwest of Kirkcowan and proceeding north on the unclassified road signed for Three Lochs;
- Remain on the unclassified road until the junction with the road leading to Glenluce, turn left at this location, and proceed west through Balminnoch; and
- Cross Tarf Bridge and turn right to proceed north to the site access junction.

For Route Option 2 loads will:

- Remain on the A75 towards Glenluce and turn right onto Main Street;
- Turn right onto the unclassified road signed for Carscreugh;
- Turn left onto Carscreigh travelling north;
- Turn left into Glenchamber Wind Farm southwest of Carscreugh and proceed north;
- Turn right onto Balminnoch Road and continue north;
- Turn left onto the wind farm tracks southwest of Torwood House and continue north;
- Turn right onto the unclassified road south of White Hill, proceeding east; and
- Turn left onto the unclassified road to Balminnoch, proceeding to the site access junction west of Tarf Bridge.

Both route options are illustrated below.

Figure 4: Proposed Access Route Option 1

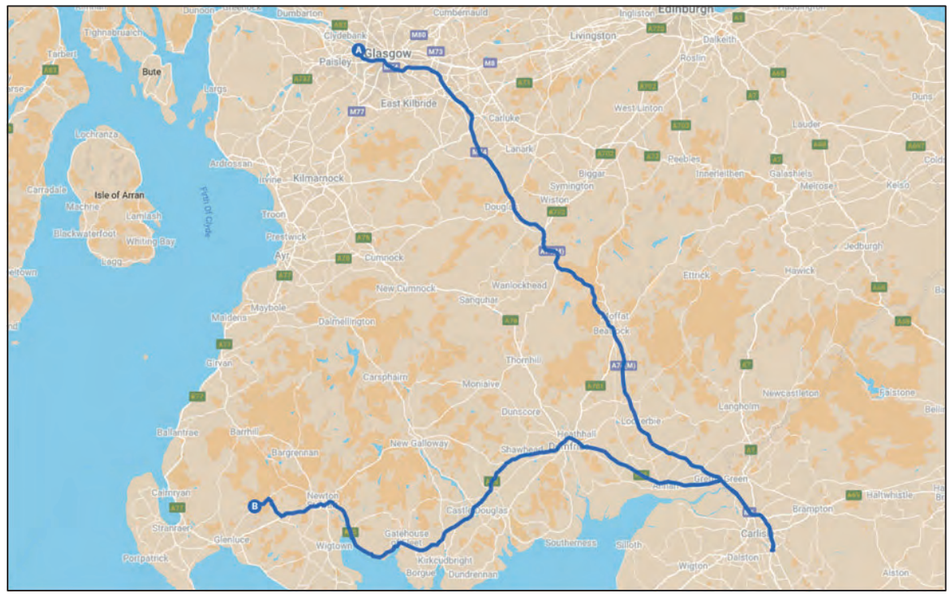
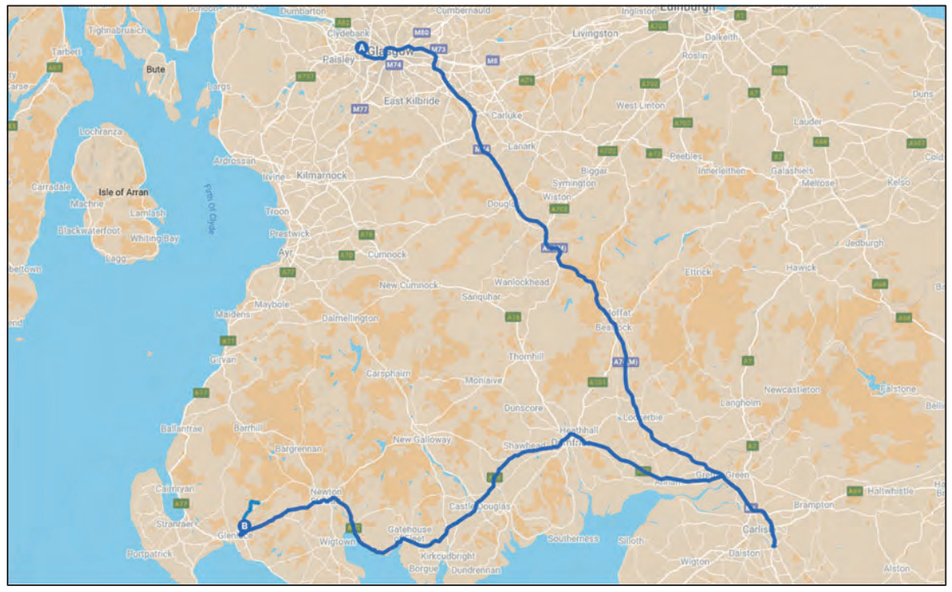


Figure 5: Proposed Access Route Option 2

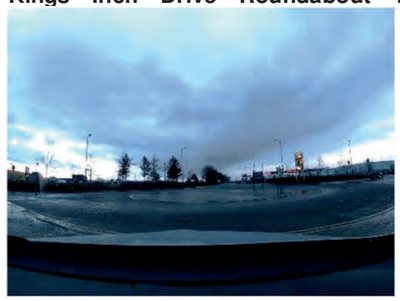


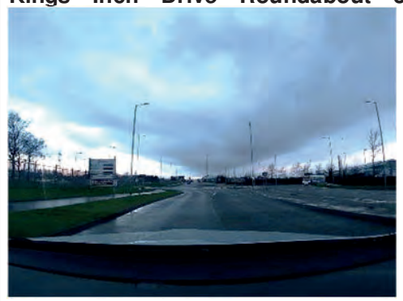
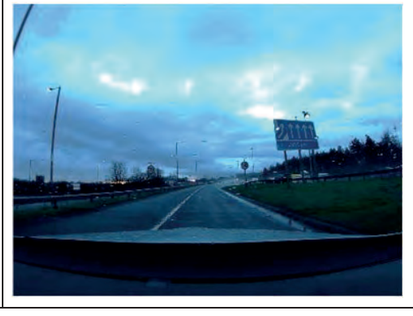
3.3 Route Constraints

The constraints noted on the site visit are detailed in the table below. These cover all constraints from the port access gate through to the site access junction. No consideration of the transport issues within the port or within the development site have been undertaken and this includes the design of the site access junction.

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

Table 3-1: Route Option 1 - Constraint Points and Details

POI	Key Constraint	Details
1	**Kings Inch Drive Roundabout 1** 	The loads will exit KGV docks from the Abnormal Loads gate onto Kings Inch Drive and cross through the centre of the roundabout using an existing over-run area. A swept path analysis has been undertaken and indicates that loads will oversail the southern verge on exit of the port where vegetation should be cleared. Loads will utilise the existing overrun over the central island. Loads will oversail the exit arm splitter island where two lit road signs should be removed. Loads will oversail the south western verge of the exit arm, however no works are required. **Swept path assessment SK01 is included in Appendix B.**
2	**Kings Inch Drive Roundabout 2** 	The loads would continue on Kings Inch Drive, taking the second exit back onto Kings Inch Drive. A swept path analysis has been undertaken and indicates that loads will oversail both verges of the carriageway on the entry arm and the southern verge of the central island, however no works are required. **Swept path assessment SK02 is included in Appendix B.**

POI	Key Constraint	Details
3	**Kings Inch Drive Roundabout 3** 	AIL deliveries would continue along Kings Inch Drive, taking the first exit back onto Kings Inch Drive. A swept path analysis has been undertaken and indicates that no mitigation is required at this location. **Swept path assessment SK03 is included in Appendix B.**
4	**Kings Inch Drive / Mayo Avenue**  	AIL deliveries will turn left from Kings Inch Drive onto Mayo Avenue. A swept path analysis has been undertaken and indicates that loads will oversail the northern segregation strip onto the northern lane where escorts should hold oncoming vehicles during movements. Loads will oversail the splitter island, but no works are required. Loads will overrun and oversail the inside of the junction where a pedestrian call post should be set down. One VMS road sign to be removed. Vegetation to be cleared back. Load bearing surface to be laid in over-run areas. Existing utilities to be protected. **Third party land required.** **Swept path assessment SK04 is included in Appendix B.**
5	**Merge onto M8** 	AIL deliveries will join the M8 eastbound at Junction 25A and continue eastwards until it joins onto to the M74 extension at Junction 1. No mitigation is required as the transition from the M8 to the M74 is a simple lane change.

POI	Key Constraint	Details
6	**M6 Junction 42** 	AIL deliveries will depart the M6 onto the Junction 42 slip road and proceed to the roundabout at the top of the slip. AIL deliveries will then travel around the roundabout to then re-join the M6 northbound. A swept path analysis has been undertaken and indicates that loads will oversail the western verge on the entry arm where the crash barrier should be oversailed. Loads will oversail the eastern verge on the entry arm where two road signs should be removed and the proximity to lighting columns should be confirmed during the test run. Loads will oversail the north eastern verge of the central island where the crash barrier will be oversailed and one lit chevron sign removed. Vegetation should be trimmed back. Loads will oversail the south eastern splitter island where one road sign should be removed. The proximity to the lighting columns should be confirmed during the test run. Loads will oversail the south eastern verge of the central island where loads will oversail the crash barrier. One lit chevron sign should be removed. Loads will oversail the southern verge and the south western verge where one road sign should be removed. The proximity to the lighting columns should be confirmed during the test run. Loads will oversail the south western verge of the central island where the crash barrier will be oversailed and one lit chevron sign should be removed. Vegetation should be trimmed back. Loads will oversail the north western central reserve island where one road sign should be removed. Loads will oversail he north western verge of the central island where loads will oversail the crash barrier and one lit chevron sign removed. Loads will oversail the western verge of the exit arm where vegetation should be cleared. One road sign should be removed. **Swept path assessment SK05 is included in Appendix B.**

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POI	Key Constraint	Details
7	**M6 Junction 22** 	AIL deliveries will depart the M6 onto the Junction 22 slip road and join the A75 travelling west. No mitigation is required at this location.
8	**A75 / A780 Roundabout** 	AIL deliveries would proceed westbound, taking the second exit onto the A75 Dumfries Bypass. A swept path analysis has been undertaken and indicates that loads will oversail the southern verge of the entry arm where one road sign should be removed, and vegetation trimmed. Loads will oversail the north eastern verge of the entry arm where the proximity to one lighting column should be confirmed during the test run. Loads will oversail the north eastern verge of the central island and the eastern verge of the exit arm, but no works are required. **Swept path assessment SK06 is included in Appendix B.**
9	**A75 / A709 Roundabout** 	AIL deliveries would proceed westbound, taking the second exit onto the A75 Dumfries Bypass. A swept path analysis has been undertaken and indicates that loads will overrun and oversail the eastern verge of the entry arm where the existing overrun area should be utilised. Vegetation should be cleared, and a section of crash barrier removed. Loads will oversail the eastern splitter island where one road sign should be removed. Loads will oversail the north eastern verge of the central island where one lit chevron sign should be removed, and vegetation cleared. Loads will overrun and oversail the north eastern verge of the exit arm where the existing overrun area should be utilised. **Swept path assessment SK07 is included in Appendix B.**

POI	Key Constraint	Details
10	**A75 / A701 Roundabout** 	AIL deliveries would proceed westbound, taking the second exit onto the A75 Dumfries Bypass. A swept path analysis has been undertaken and indicates that loads will oversail the southern verge of the entry arm where vegetation should be trimmed back. Loads will oversail the southern verge of the central island where one lit chevron sign should be removed. Loads will overrun and oversail the south western verge on exit where one lighting column should be removed and the existing overrun area extended with a load bearing surface. Confirmation that works are within the landownership of Transport Scotland should be sought. **Swept path assessment SK08 is included in Appendix B.**
11	**A75 / A76 Roundabout** 	AIL deliveries would proceed westbound, taking the fourth exit onto the A75 Dumfries Bypass. A swept path analysis has been undertaken and indicates that loads will oversail the southern verge of the entry arm where the bank should be reprofiled to allow oversail and vegetation cleared. Loads will oversail the south eastern verge of the central island where one lit chevron sign should be removed. Loads will oversail the southern splitter island where one road sign should be removed. Loads will oversail the south western verge of the central island where one lit chevron sign should be removed. **Swept path assessment SK09 is included in Appendix B.**

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POI	Key Constraint	Details
12	**A75 / A780 Roundabout** 	AIL deliveries would proceed westbound, taking the second exit onto the A75 Dumfries Bypass. A swept path analysis has been undertaken and indicates that loads will overrun and oversail the central island where loads will utilise the existing overrun area. One lit chevron sign should be removed. Loads will oversail the exit arm splitter island where one road sign should be removed. **Swept path assessment SK10 is included in Appendix B.**
13	**A75 Garroch Roundabout** 	AIL deliveries would proceed westbound, taking the second exit onto the A75 Dumfries Bypass. A swept path analysis has been undertaken and indicates that loads will undertake a contraflow transit of the junction. Loads will oversail the northern verge of the central island and the northern verge of the exit arm where the proximity to the road signage and one lighting column should be confirmed during the test run. **Swept path assessment SK11 is included in Appendix B.**
14	**A75 Drumore Roundabout** 	AIL deliveries would proceed westbound, taking the second exit onto the A75. A swept path analysis has been undertaken and indicates that loads will oversail the southern verge of the entry arm, however no works are required. Loads will utilise the existing overrun area through the central island. Two chevron signs should be relocated. **Swept path assessment SK12 is included in Appendix B.**

Pell Frischmann

POI	Key Constraint	Details
15	**A75 Crocketford Shot Hill** 	AIL deliveries will proceed along the A75 at this location. There is a central island entrance feature in the village. The two bollards will need to be temporarily removed to ensure vehicles can pass without damaging them.
16	**A75 Crocketford or Ninemile Bar** 	AIL deliveries will proceed along the A75 at this location. There is a central island as loads leave the village. The two bollards will need to be temporarily removed to ensure vehicles can pass without damaging them.
17	**A75 / A745 Roundabout** 	AIL deliveries would proceed westbound, taking the second exit onto the A75. A swept path analysis has been undertaken and indicates that loads will oversail the eastern verge of the entry arm where one lighting column should be removed. Loads will utilise the existing overrun area through the central island. Two chevron signs should be relocated. Loads will oversail the south eastern verge of the exit arm, but no works are required. **Swept path assessment SK13 is included in Appendix B.**

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POI	Key Constraint	Details
18	**A75 / B736 Roundabout** 	AIL deliveries would proceed westbound, taking the second exit onto the A75. A swept path analysis has been undertaken and indicates that loads will oversail the eastern verge of the entry arm and the entry arm splitter island, but no works are required. Loads will utilise the existing overrun area through the central island. Two chevron signs will need to be relocated. Loads will oversail the exit arm splitter island, however no works are required. **Swept path assessment SK14 is included in Appendix B.**
19	**A75 / A714 Roundabout** 	AIL deliveries would proceed westbound, taking the second exit onto the A75. A swept path analysis has been undertaken and indicates that loads will oversail both verges of the entry arm where vegetation should be trimmed back on the northern verge. Loads will oversail the northern verge of the central island where two chevron signs should be removed. Loads will oversail the northern verge of the exit arm splitter island where one lit road sign and one bollard should be removed. Loads will overrun and oversail the northern verge on exit where the existing overrun area should be extended. One lighting column and a section of crash barrier should be removed. **Swept path assessment SK15 is included in Appendix B.**
20	**A75 The Crossings** 	AIL deliveries would proceed through the bend. Loads will occupy the entire carriageway, however no physical mitigation works are required.

POI	Key Constraint	Details
21	**A75 Ardachie** 	AIL deliveries would proceed through the bend. A swept path analysis has been undertaken and indicates that loads will oversail the northern verge where trees should be removed and the bollards oversailed. Potential **third party land is required.** Loads will oversail the south eastern verge where vegetation should be cleared. **Swept path assessment SK16 is included in Appendix B.**
22	**A75 / Unclassified Road to Three Lochs Junction** 	AIL deliveries will turn right onto the unclassified road which is signed for Three Lochs. A swept path analysis has been undertaken and indicates that loads will oversail the south eastern verge where one utility pole and one road sign should be removed. One bollard should be oversailed and **third party land is required.** Loads will overrun and oversail the inside of the junction where a load bearing surface should be laid in overrun areas. Two utility poles, vegetation, trees and a series of bollards should be removed. **Third party land is required.** Loads will overrun and oversail the south western verge of the unclassified road where a load bearing surface should be laid. **Swept path assessment SK17 is included in Appendix B.**

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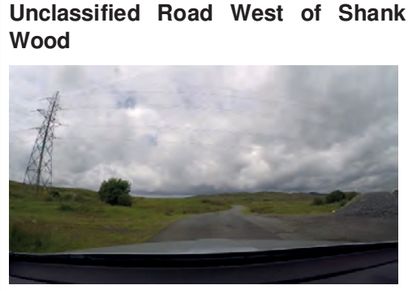
POI	Key Constraint	Details
23	**Unclassified Road Cattle Grid North of Kildarroch** 	AIL deliveries will proceed northwest on the unclassified road over the cattle grid at this location. Loads should be set on a higher suspension setting from this point onwards. Care should be taken when passing under all overhead utilities and a height survey review is recommended with the utility firms. A swept path analysis has been undertaken and indicates that loads will oversail both verges of the carriageway though this location. The cattle grid may need to be reinforced to accommodate 12 tonne axle loads. The gates of the cattle grid will need to be removed. One road sign and wall on the north eastern verge should be removed north west of the cattle grid. **Swept path assessment SK18 is included in Appendix B.**
24, 25	**Unclassified Road West of Shank Wood**  	AIL deliveries will proceed northwest on the unclassified road. 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. A swept path analysis has been undertaken and indicates that loads will oversail both verges throughout this location. Loads will oversail the eastern verge through the double bend where a land search is recommended to confirm the adopted boundary. Loads will overrun and oversail the south western verge on exit of the double bend where a load bearing surface should be laid in overrun areas and one road sign should be removed. **Swept path assessment SK19 is included in Appendix B.**.

POI	Key Constraint	Details
26	**Unclassified Road East of Grey Hill** 	AIL deliveries will proceed northwest on the unclassified road. 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. A swept path analysis has been undertaken and indicates that loads will oversail both verges of the carriageway however no physical mitigation works are required. **Swept path assessment SK20 is included in Appendix B.**
27	**Unclassified Road Northeast of Grey Hill** 	AIL deliveries will proceed northwest on the unclassified road. 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.
28	**Unclassified Road Northeast of White Hill** 	AIL deliveries will proceed northwest on the unclassified road. 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. Loads will occupy the entire carriageway at this location, however no horizontal physical mitigation works are required.
29	**Unclassified Road North of White Hill** 	AIL deliveries will proceed northwest on the unclassified road. 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. A swept path analysis has been undertaken and indicates that loads will oversail both verges of the carriageway where a land search is recommended to identify the extent of the adopted boundary. **Swept path assessment SK21 is included in Appendix B.**

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POI	Key Constraint	Details
30	**Unclassified Road West of Bennylow** 	AIL deliveries will proceed northwest on the unclassified road. 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. A swept path analysis has been undertaken and indicates that loads will oversail both verges of the carriageway where a land search is recommended to identify the extent of the adopted boundary. **Swept path assessment SK22 is included in Appendix B.**
31	**Unclassified Road West of Rough Gibb** 	AIL deliveries will proceed northwest on the unclassified road. 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. A swept path analysis has been undertaken and indicates that loads will oversail both verges of the carriageway where a land search is recommended to identify the extent of the adopted boundary. **Swept path assessment SK23 is included in Appendix B.**
32	**Unclassified Road Cattle Grid East of Knockincar** 	AIL deliveries will proceed northwest on the unclassified road over the cattle grid. A swept path analysis has been undertaken and indicates that loads will oversail both verges of the carriageway and the cattle grid may need to be reinforced to allow for 12 tonne axle load movements. The gates should be removed. **Swept path assessment SK24 is included in Appendix B.**

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POI	Key Constraint	Details
33	**Unclassified Road South of Ballochadee Bridge**  	AIL deliveries will proceed northwest on the unclassified road. A swept path analysis has been undertaken and indicates that loads will oversail both verges of the carriageway through the first bend, but no works are required. Loads will oversail the north eastern verge through the second bend where vegetation should be removed. Loads will oversail the south western verge through the second bend where the stone wall, fence and vegetation should be removed. **Third party land is required.** **Swept path assessment SK25 is included in Appendix B.**
34	**Unclassified Road Ballochadee Bridge** 	AIL deliveries will proceed northwest on the unclassified road and cross the existing bridge. A swept path analysis has been undertaken and indicates that loads will oversail the south western verge where **third party land is required.** Loads will oversail the inside of the bend, however no physical mitigation works are required. Loads will overrun and oversail the western verge where a load bearing surface should be laid in overrun areas. Vegetation should be removed, and the ditch culverted. Loads will oversail both verges of the carriageway north of the initial bend and bridge, but no works are required. **Swept path assessment SK26 and SK27 is included in Appendix B.**

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POI	Key Constraint	Details
35	**Unclassified Road Dirnow Hill** 	AIL deliveries will proceed northwest on the unclassified road. A swept path analysis has been undertaken and indicates that loads will oversail the eastern verge where one road sign should be removed. A land search is recommended to confirm the extent of the adopted boundary. Loads will oversail the inside of the bend where trees should be removed, and **third party land is required.** Loads will oversail both verges of the carriageway north west of the bend, but no works are required. **Swept path assessment SK28 is included in Appendix B.**
36	**Unclassified Road Southeast of Disused Quarry** 	AIL deliveries will proceed northwest on the unclassified road. 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. A swept path analysis has been undertaken and indicates that loads will oversail both verges of the carriageway, however no physical mitigation works are required. **Swept path assessment SK29 is included in Appendix B.**
37	**Unclassified Road Old Dirnow School** 	AIL deliveries will proceed northwest on the unclassified road. A swept path analysis has been undertaken and indicates that loads will overrun and oversail the north eastern verge before the bend where a load bearing surface should be laid in overrun areas and vegetation cleared. Loads will overrun and oversail the north eastern verge after the bend where a load bearing surface should be laid in overrun areas and trees trimmed. **Swept path assessment SK30 is included in Appendix B.**

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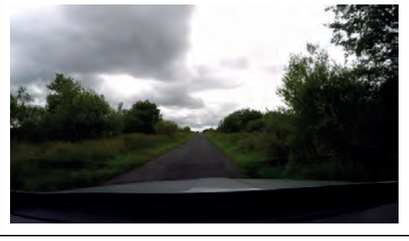
POI	Key Constraint	Details
38	**Unclassified Road North of Dirnow Loch** 	AIL deliveries will proceed northwest on the unclassified road. A swept path analysis has been undertaken and indicates that loads will oversail the south western verge where one road sign should be removed. Loads will oversail the inside of the bend where trees should be trimmed. Loads will oversail the western verge after the bend, but no works are required. **Swept path assessment SK31 is included in Appendix B.**
39	**Unclassified Road / Road to Glenluce Junction**  	AIL deliveries will turn left at the junction and proceed southwest. A swept path analysis has been undertaken and indicates that loads will oversail the south western verge of the unclassified road, but no works are required. Loads will oversail and overrun the north eastern verge on the unclassified road where a load bearing surface should be laid in overrun areas. Vegetation should be cleared, and parking suspended. One road sign, one utility pole and one phone box should be removed. **Third party land required.** Loads will overrun and oversail the north eastern verge of the road to Glenluce where a load bearing surface should be laid in overrun areas and vegetation cleared. Three road signs, one utility pole and fence should be removed. **Third party land is required.** **Swept path assessment SK32 is included in Appendix B.**
40	**Road to Glenluce North of Black Loch** 	AIL deliveries will proceed southwest on the road to Glenluce. Road deterioration was noted through this location. The road will need to be widened to a minimum of 4.5m (with a 5m wide clear corridor) to comply with turbine supplier requirements.

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POI	Key Constraint	Details
41	**Road to Glenluce West of Black Loch** 	AIL deliveries will proceed southwest on the road to Glenluce. The tree canopy should be trimmed back throughout this section to ensure a clear 5m head height. Loads will oversail both verges of the carriageway where trees should be removed. **Swept path assessment SK33 is included in Appendix B.**
42	**Road to Glenluce Balminnoch Lodge** 	AIL deliveries will proceed west on the road to Glenluce. 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. The tree canopy should be trimmed back throughout this section to ensure a clear 5m head height.
43	**Road to Glenluce Northwest of Loch Heron** 	AIL deliveries will proceed southwest on the road to Glenluce. The tree canopy should be trimmed back throughout this section to ensure a clear 5m head height. A swept path analysis has been undertaken and indicates that loads will oversail the northern verge, however no physical mitigation works are required. Loads will oversail the southern verge where trees should be removed. **Swept path assessment SK34 is included in Appendix B.**

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POI	Key Constraint	Details
44	**Road to Glenluce North of Loch Ronald** 	AIL deliveries will proceed southwest on the road to Glenluce. 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. A swept path analysis has been undertaken and indicates that loads will oversail both verges of the carriageway, however no physical mitigation works are required. **Swept path assessment SK35 is included in Appendix B.**
45	**Road to Glenluce North of Mark of Lochronald** 	AIL deliveries will proceed southwest on the road to Glenluce. A swept path analysis has been undertaken and indicates that loads will oversail the south eastern verge, but no works are required. Loads will oversail the northern verge where trees should be trimmed / removed. Loads will oversail the southern verge through the last bend where trees should be trimmed. **Swept path assessment SK36 is included in Appendix B.**
46, 70	**Unclassified Road Junction West of Tarf Bridge**  	The road should be widened to a minimum of 4.5m through the section. Loads will overrun and oversail both verges through the initial left bend where load bearing surfaces should be laid. **Third party land** will be required. Stone walls, two utility poles and gates should be removed. Loads will turn right at the junction and a large area of **third party land** will be required to the east for blade oversail of the wall and fence. Loads will overrun and oversail into **third party land** on the inside of the right turn where a load bearing surface should be laid and two utility poles, stone wall and the fence should be removed. The drainage ditch should be culverted. **Swept path assessment SK37a is included in Appendix B.**

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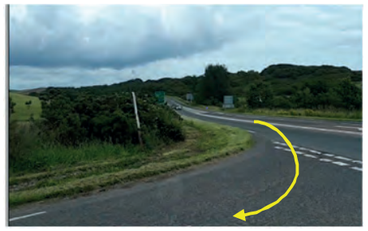
POI	Key Constraint	Details
69	**Unclassified Road Northeast of Tor Wood** 	The loads will continue on the unclassified road. The vertical profile of the road at this location is pronounced and should be reviewed during the test run stage to ascertain if tar wedges will be required to prevent grounding.
68	**Proposed Site Entrance** 	Loads would turn right at the existing junction which would form the access junction. The junction will need to be upgraded to meet manufacturer and Dumfries and Galloway Council standards. **Third party land** will be required on the inside of the right turn and removal of two utility poles from the verge of the approach road will be required. **Swept path assessment SK37c is included in Appendix B.**

Table 3-2: Route Option 2 - Constraint Points and Details

POI	Key Constraint	Details
47	**A75 / Main Street Junction** 	The loads will turn right to leave the A75 and join Main Street. A swept path analysis has been undertaken and indicates that loads will oversail the south eastern verge where trees should be removed, and the blade tip will oversail the safety barrier. Potential **third party land is required.** Loads will oversail the junction splitter island where two road signs and one bollard should be removed. Loads will oversail the inside of the junction where one road sign, fence and vegetation should be removed. **Third party land is required.** **Swept path assessment SK38 is included in Appendix B.**

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POI	Key Constraint	Details
48	**Main Street / Road to Carscreugh Junction** 	The loads will turn right to leave Main Street and join the road signed for Carscreugh. A swept path analysis has been undertaken and indicates that loads will overrun and oversail the south western verge where a load bearing surface should be laid in overrun areas. Two road signs, vegetation and a fence should be removed. **Third party land is required.** Loads will oversail the western verge of the junction where one road sign should be removed. Loads will oversail the inside of the junction where one road sign, one utility pole, two wooden poles, vegetation and a fence should be removed. **Third party land is required.** Loads will overrun and oversail the north western verge where a load bearing surface should **Swept path assessment SK39 is included in Appendix B.**
49	**Road to Carscreugh Quarry Cottage** 	The loads will continue on the road to Carscreugh and turn left onto Carscreigh and proceed north. Loads will occupy the entire carriageway, but no mitigation is required.

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POI	Key Constraint	Details
50, 51	**Road to Carscreugh / Carscreigh Junction**  	The loads will continue on the road to Carscreugh. A swept path analysis has been undertaken and indicates that loads will oversail the southern verge before the junction where vegetation should be trimmed. Loads will overrun and oversail the inside of the junction where a load bearing surface should be laid in overrun areas. Two road signs, vegetation, trees, two utility poles, one shipping container, gates and a fence should be removed. **Third party land is required.** Loads will oversail the eastern verge north of the junction where vegetation should be trimmed. **Swept path assessment SK40 is included in Appendix B.**
52	**Carscreigh Railway Northeast of High Glenjorrie**  	The loads will continue north on Carscreigh. A swept path analysis has been undertaken and indicates that loads will overrun and oversail the eastern verge through the first bend where a load bearing surface should be laid in overrun areas. Vegetation and a stone wall should be removed. **Third party land is required.** Loads will oversail the western verge through the first bend where vegetation should be removed. Loads will oversail the eastern verge though the second bend where vegetation and trees should be removed. **Third party land is required.** Loads will overrun and oversail the western verge through the second bend where a load bearing surface should be laid in overrun areas. A stone wall and vegetation should be removed, and **third party land is required.** **Swept path assessment SK41 is included in Appendix B.**

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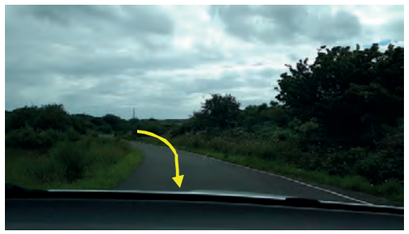
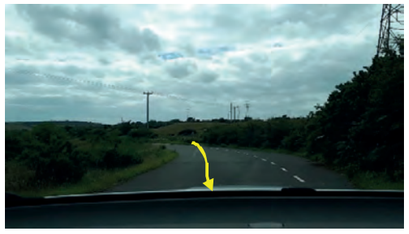
POI	Key Constraint	Details
53, 54	**Carscreigh Northeast of High Glenjorrie**  	The loads will continue north on Carscreigh. A swept path analysis has been undertaken and indicates that loads will oversail the south eastern verge before the first bend where vegetation and one utility pole should be removed. Loads will oversail the western verge through the double bend where vegetation should be removed. Loads will oversail the eastern verge through the second bend where vegetation should be removed. Loads will overrun and oversail the north western verge after the second bend where a load bearing surface should be laid in overrun areas and vegetation trimmed. **Swept path assessment SK42 is included in Appendix B.**
55	**Carscreigh West of Barnshangon Hill** 	The loads will continue north on Carscreigh. A swept path analysis has been undertaken and indicates that loads will oversail the western verge before the first bend where vegetation should be removed and the proximity to one utility pole should be confirmed. Loads will oversail the south eastern verge though the first and second bend where vegetation should be removed. The cattle grid should be reinforced to allow load movements and the gates removed. Loads will overrun and oversail the north western verge through the second bend where a load bearing surface should be laid, and vegetation removed. Trees should be trimmed. Loads will overrun and oversail the eastern verge after the second bend where a load bearing surface should be laid in overrun areas and vegetation removed. Trees should be trimmed. Loads will overrun and oversail the western verge after the bends where a load bearing surface should be laid. **Swept path assessment SK43 is included in Appendix B.**

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POI	Key Constraint	Details
56	**Carscreigh / Glenchamber Wind Farm Junction** 	The loads will turn left onto the access track for Glenchamber Wind Farm. A swept path analysis has been undertaken and indicates that loads will oversail the south eastern verge into **third party land.** Loads will oversail the inside of the bend where one utility pole should be removed. Loads will oversail the north eastern verge of the wind farm track, but no works are required. **Swept path assessment SK44 is included in Appendix B.**
57	**Glenchamber Wind Farm / Unclassified Road Junction** 	The loads will turn right onto the unclassified road to Balminnoch. A swept path analysis has been undertaken and indicates that loads will overrun and oversail the western verge of the wind farm track where a load bearing surface should be laid in overrun areas. Loads will oversail the eastern verge on exit of the junction where vegetation should be cleared. Loads will overrun and oversail the north western verge where a load bearing surface should be laid in overrun areas. Vegetation should be cleared. Loads will oversail both verges of the carriageway north east of the junction, but no works are required. **Swept path assessment SK45 and Sk46 is included in Appendix B.**
58	**Drumpail Bridge** 	The loads will continue on the road to Balaminoch. Loads will occupy the entire carriageway, however no physical mitigation works are required.

POI	Key Constraint	Details
59	**Road to Balminnoch North of Drumpail Bridge** 	The loads will continue on the road to Balaminoch. Loads will occupy the entire carriageway, however no physical mitigation works are required.
60	**Road to Balminnoch North of Drumphail** 	The loads will continue on the road to Balaminoch. Loads will occupy the entire carriageway, but no mitigation is required. 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.
61	**Road to Balminnoch North of Carscreugh Croft** 	The loads will continue on the road to Balaminoch. 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.

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POI	Key Constraint	Details
62	**Road to Balminnoch / Cairn Park Road Junction** 	The loads will turn left into the junction. A swept path analysis has been undertaken and indicates that loads will overrun and oversail the south eastern verge where a load bearing surface should be laid in overrun areas. Vegetation should be cleared, and the wall removed. **Third party land is required.** Loads will oversail the inside of the junction where one road sign, one utility pole, trees and vegetation should be removed. Loads will overrun and oversail the north eastern verge where a load bearing surface should be laid in overrun areas and vegetation cleared. The wall should be removed, and **third party land is required.** The cattle grid should; be reinforced to allow load movements and the gates removed. **Swept path assessment SK47 is included in Appendix B.**
63	**Cairn Park Road / Unclassified Road Junction** 	The loads will turn right onto the unclassified road south of White Hill. A swept path analysis has been undertaken and indicates that loads will oversail the western verge into **third party land.** A section of fence should be removed. Loads will overrun and oversail the inside of the junction where a load bearing surface should be laid in overrun areas. Vegetation should be cleared. A section of fence and a gate should be removed, and **third party land is required.** **Swept path assessment SK48 is included in Appendix B.**
64	**Unclassified Road Through Penninghame Forest** 	The loads will continue on the unclassified road. Cattle grid should be reinforced to allow load movements and gates to be removed.

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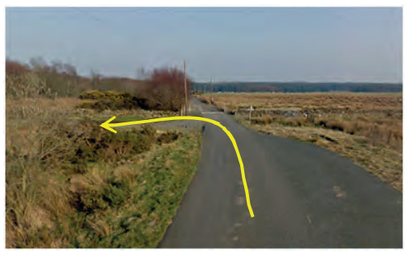
POI	Key Constraint	Details
65	**Unclassified Road Through Penninghame Forest** 	The loads will continue on the unclassified road. The vertical profile of the road at this location is pronounced and should be reviewed during the test run stage to ascertain if tar wedges will be required to prevent grounding.
66	**Unclassified Road Through Penninghame Forest** 	The loads will continue on the unclassified road. 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.
67	**Unclassified Road Right Bend Through Penninghame Forest** 	The loads will continue on the unclassified road. 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. A swept path analysis has been undertaken and indicates that loads will oversail both verges of the carriageway, however no physical mitigation works are required. **Swept path assessment SK49 is included in Appendix B.**
68	**Unclassified Road North of Tor Wood** 	The loads will continue on the unclassified road. A swept path analysis has been undertaken and indicates that loads will oversail the south western verge, but no works are required. Loads will oversail the norther verge where vegetation should be trimmed. The cattle grid should be reinforced to allow load movements and have its gates removed. **Swept path assessment SK50 is included in Appendix B.**

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3.4 Route Summary

Assuming that the outlined mitigation and associated third party land agreements are in place, the proposed routes are considered feasible for the delivery of the proposed components. Route Option 1 is considered more preferable to the Option 2.

3.5 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 case loads 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 outwith 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 due to the 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.

3.6 Weight Review

A weight review has been undertaken via the ESDAL (Electronic Service Delivery for Abnormal Loads) contacts database using the Highways Agency website www.esdal.com.

All of the relevant ESDAL contacts are noted in Table 3 and all have been contacted to ascertain if there are any relevant constraints that should be noted.

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Table 3-3: ESDAL Contacts

Organisation	Email Address
Glasgow City Council	abnormalloads@glasgow.gov.uk
Renfrewshire Council	ei@renfrewshire.gov.uk
Cumbria Constabulary	AbnormalLoads@cumbria.pnn.police.uk
Transport Scotland	paul.winn@transport.gov.scot
Highways England North West Region	nwabnormalloadsenquiries@highwaysengland.co.uk
Police Scotland	OSDAbnormalLoadsScotland@scotland.pnn.police.uk
Network Rail	AbLoadsESDAL@networkrail.co.u
Scottish Canals	SCAbnormal.Loads@scottishcanals.co.uk
Scotland Transerv	abnormalloadrouting@scotlandtranserv.co.uk
Dumfries and Galloway Council	esdal@dumgal.gov.uk
M8 DBFO	m8dbfo.abloads@amey.co.uk
Autolink M6 ROM	abnormal.loads@m6dbfo.co.uk

3.7 Land Ownership

The limits of road adoption can vary depending upon the location of the site and the history of the roads agency. The adopted area is generally defined as land contained within a defined boundary where the road agency holds the maintenance rights for the land from the original land owner. In urban areas, this usually defined as the area from the edge of the footway across the road to the opposing footway back edge.

In rural areas the area of adoption can be open to greater interpretation as defined boundaries may not be readily visible. In these locations, the general rule is that the area of adoption is between established fence / hedges lines or a maximum 2m from the road edge. This can vary between areas and location.

3.8 Summary Issues

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

- That any necessary topographical surveys are undertaken and the swept path results repeated;
- 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;

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- That a test run is completed to confirm the route and review any vertical clearance issues; and
- 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 Ramboll to prepare a Route Survey Report to examine the issues associated with the transport of AIL turbine components to the development site at Artfield.

This report identifies the key points and issues associated with the proposed route 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 Vestas V150 turbine sections and has been undertaken on the basis of a Superwing blade trailer.

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

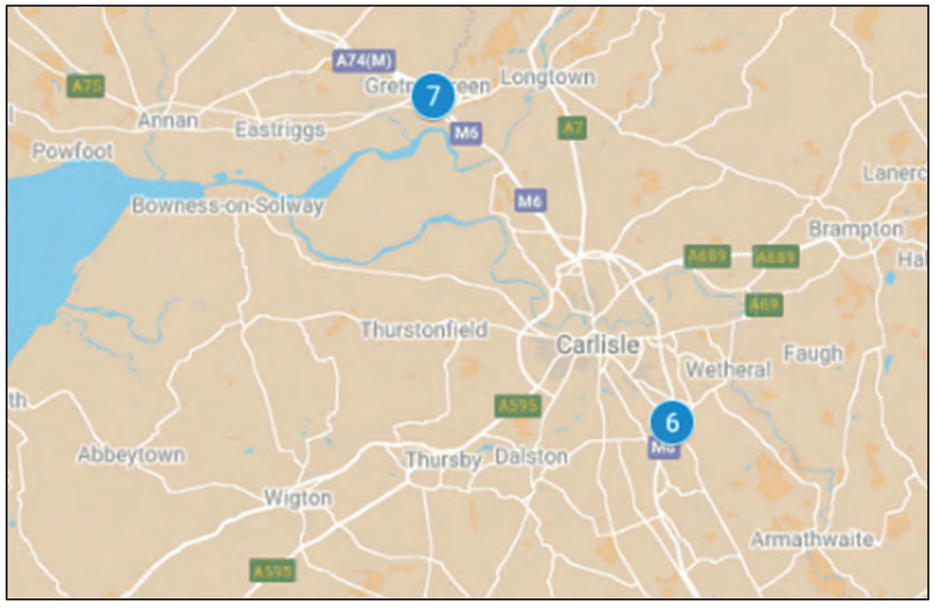
4.2 Further Actions

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

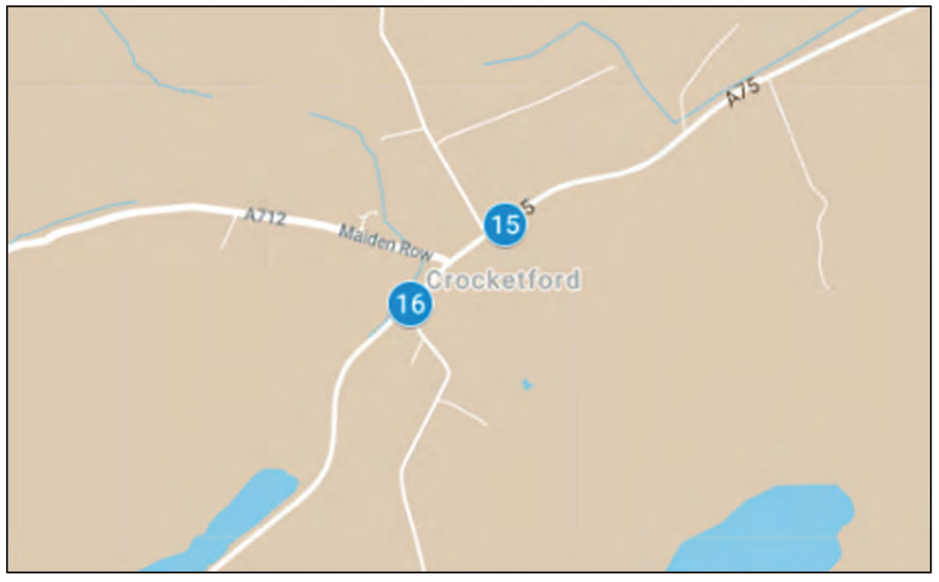
- Prepare detailed mitigation design proposals to help inform the land option / consultee discussions;
- Obtain the necessary land options;
- Undertake discussion with the affected utility providers and roads agencies;
- Obtain the necessary statutory licences to enable the mitigation measures; and
- Develop a detailed operational Transport Management Plan to assist in transporting the proposed loads.

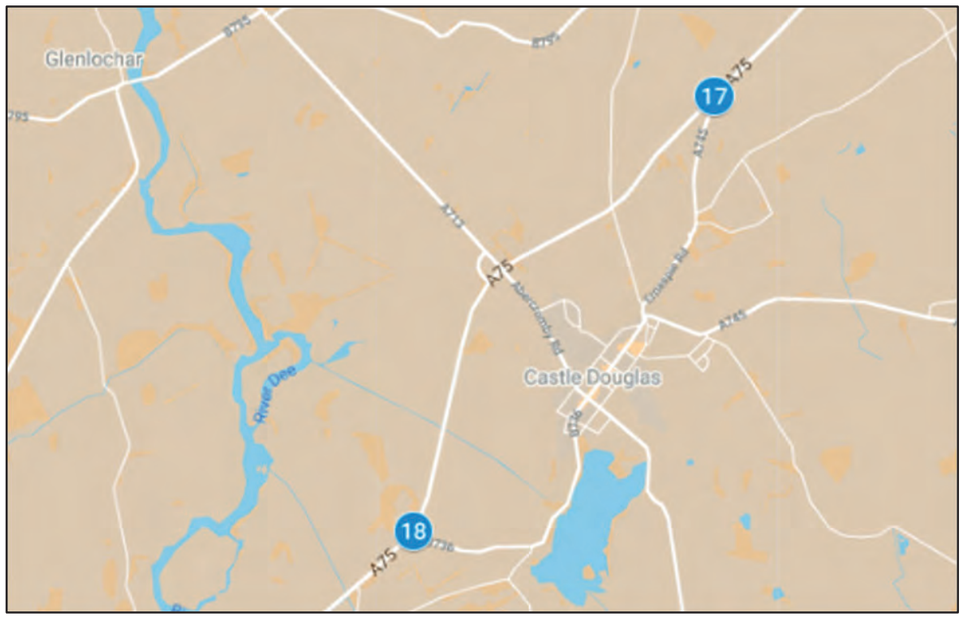
Artfield Wind Farm – Vestas V150
103864

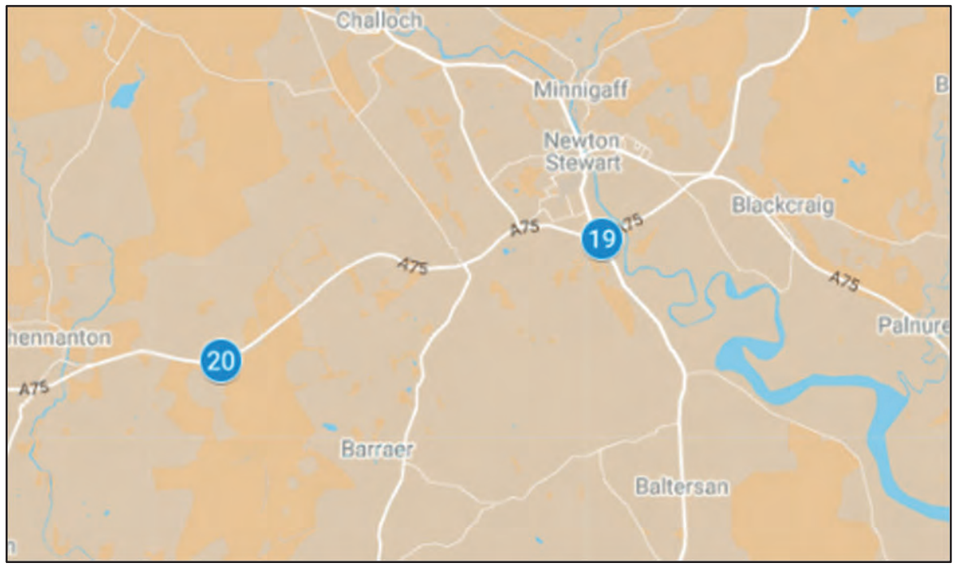
Appendix A
Points of Interest Locations



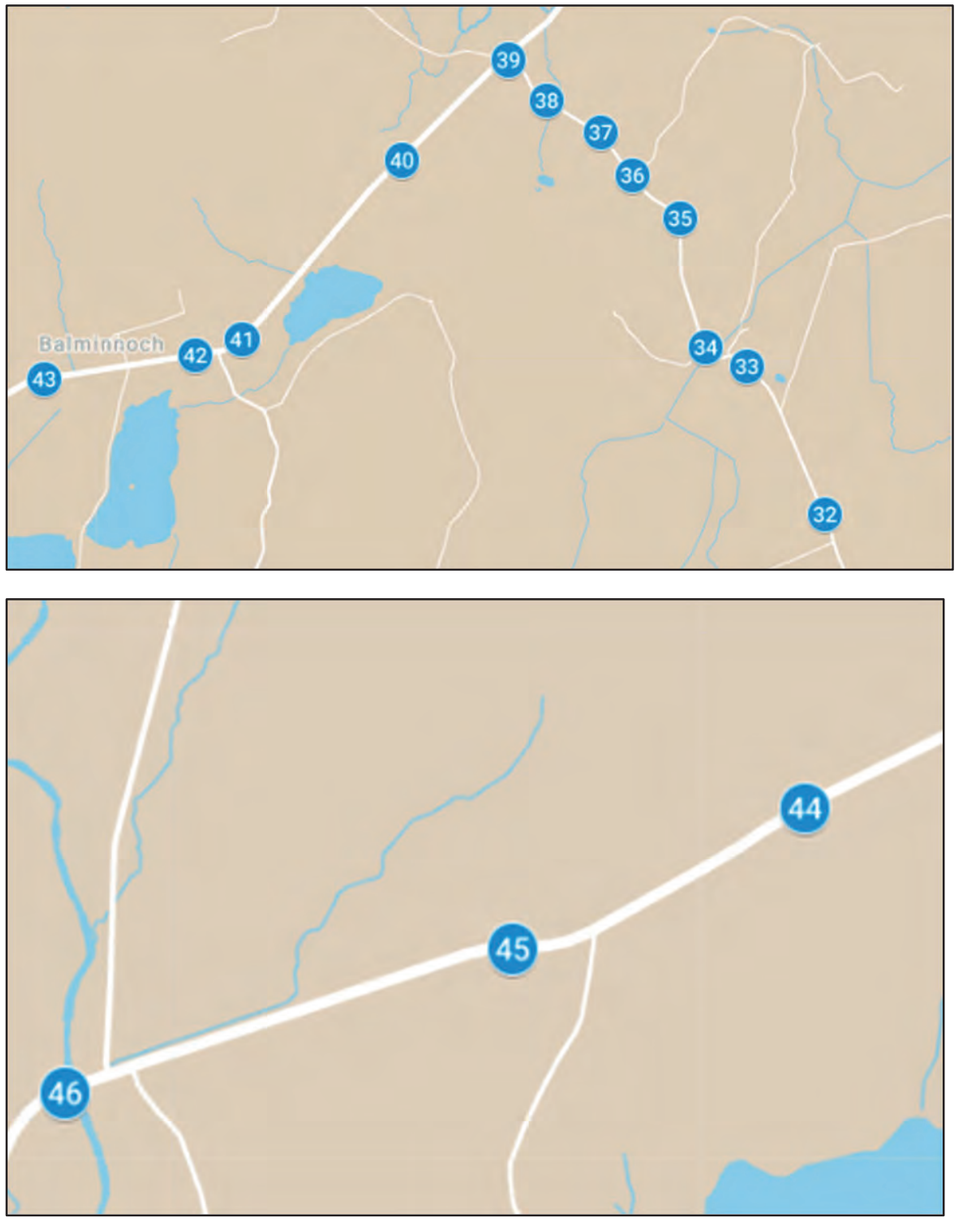

Heathhall
Irongray
A76
Glasgow Rd
A701
A75
10
Terregles
11
9
Dumfries
8
12
13
14
Cargenbridge
Lochfoot
Kingholm Quay
Cargen


A75
A712
Maiden Row
15
Crocketford
16

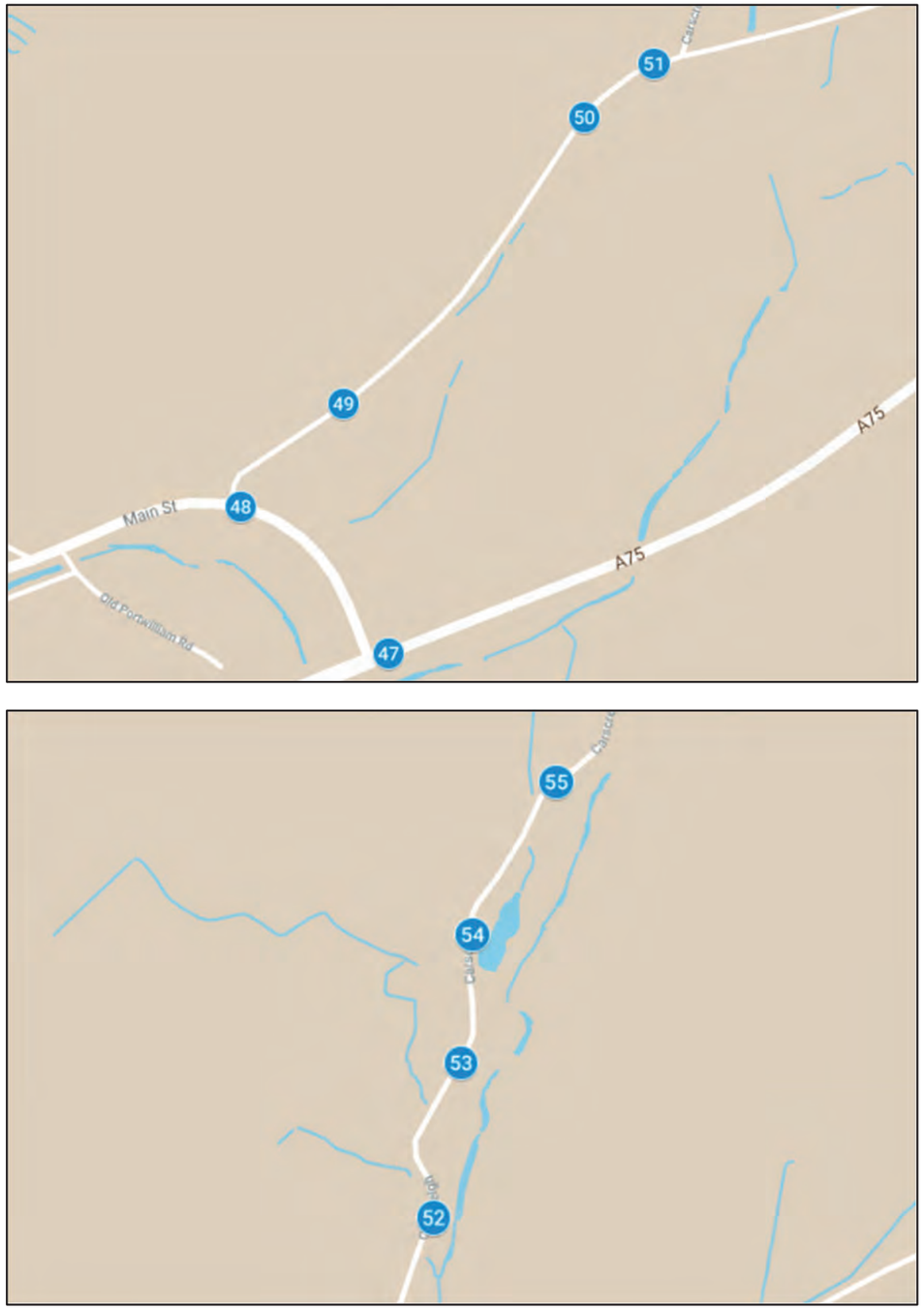

Glenlochar
A75
17
River Dee
Castle Douglas
18


Challoch
Minnigaff
Newton Stewart
A75
19
Blackcraig
20
Barraer
Baltersan
Palnure

Artfield Wind Farm – Vestas V150
103864



Pell Frischmann



Artfield Wind Farm – Vestas V150
103864

Pell Frischmann

Artfield Wind Farm – Vestas V150
103864

Appendix B
Swept Path Assessments

Pell Frischmann

Blade

Tower

Pell Frischmann
93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Rambol

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

Project: Artfield Wind Farm

Drawing Title: V150 Blade and Tower

SPA Location: Kings Inch Drive Roundabout 1

	Name	Date
Drawn	JS	01/03/2021
Designed	CN	01/03/2021
Checked	TL	01/03/2021
Point of Interest		1

Scale: 1:1000 @ A3

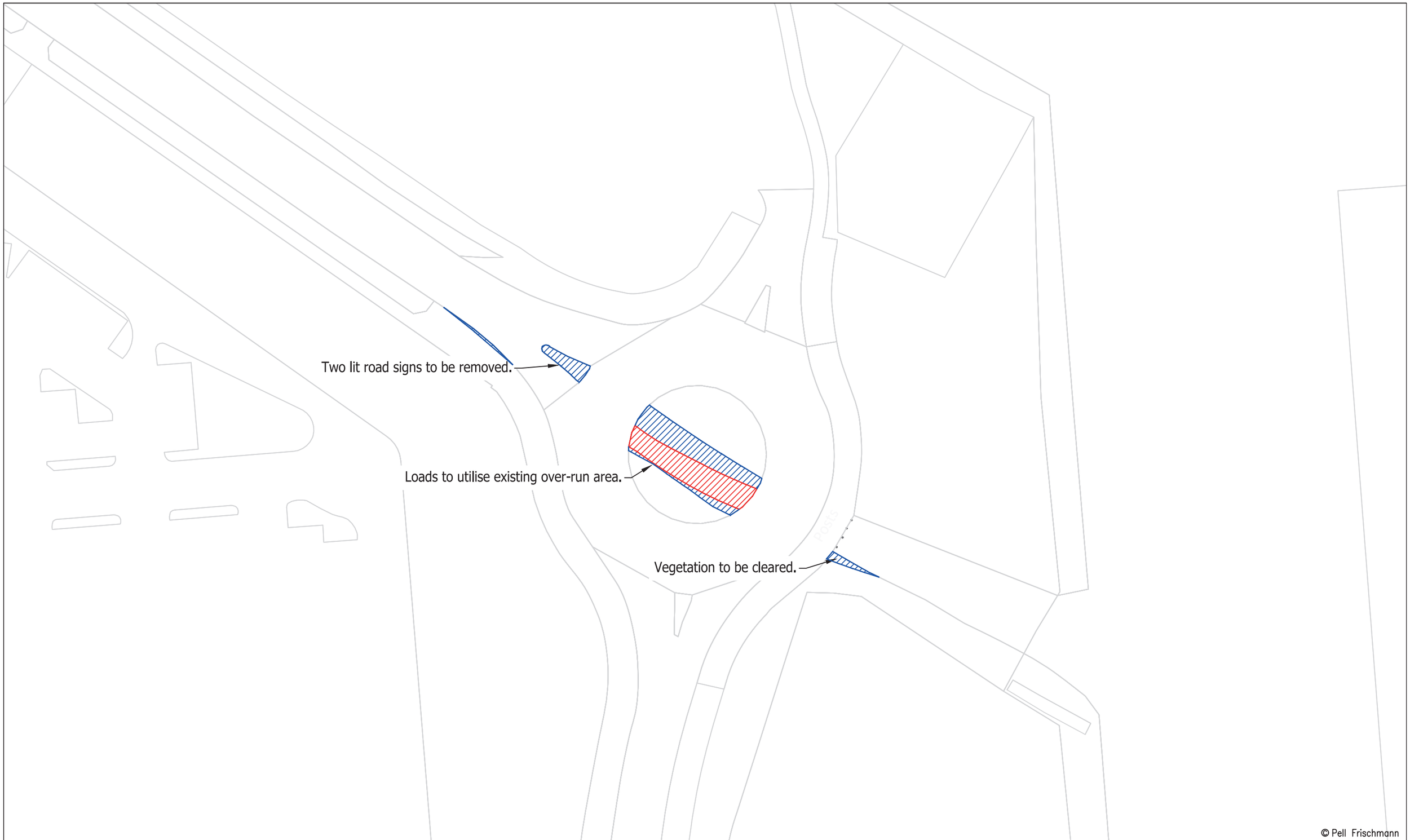
File No: 103864 Rambol Artfield V150 SPA 01032021.dwg

Drawing Status: Draft

Drawing No.: SK01

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: XXX



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93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Rambol

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

Project: Artfield Wind Farm

Drawing Title: V150 Blade and Tower

SPA Location: Kings Inch Drive Roundabout 1

	Name	Date
Drawn	JS	01/03/2021
Designed	CN	01/03/2021
Checked	TL	01/03/2021
Point of Interest		1

Scale: 1:500 @ A3

File No: 103864 Rambol Artfield V150 SPA 01032021.dwg

Drawing Status: Draft

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.

Revision: XXX

Blade

Tower

Pell Frischmann
93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Rambol

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

Project: Artfield Wind Farm

Drawing Title: V150 Blade and Tower

SPA Location: Kings Inch Drive Roundabout 2

	Name	Date
Drawn	JS	01/03/2021
Designed	CN	01/03/2021
Checked	TL	01/03/2021
Point of Interest		2

Scale: 1:1000 @ A3

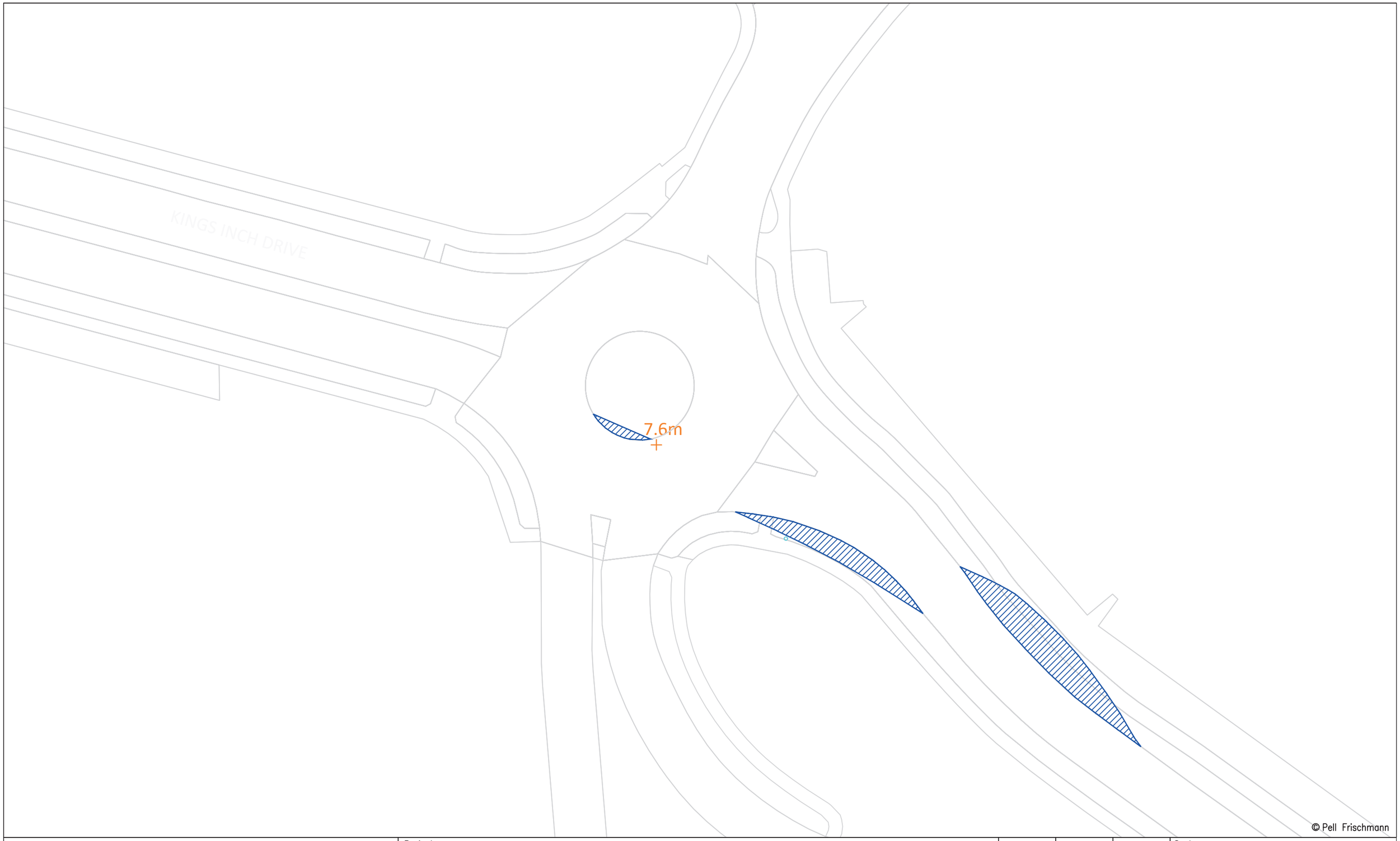
File No: 103864 Rambol Artfield V150 SPA 01032021.dwg

Drawing Status: Draft

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.

Revision: XXX



Pell Frischmann
93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Rambol

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over–run | Over–sail

Project: Artfield Wind Farm

Drawing Title: V150 Blade and Tower

SPA Location: Kings Inch Drive Roundabout 2

	Name	Date
Drawn	JS	01/03/2021
Designed	CN	01/03/2021
Checked	TL	01/03/2021
Point of Interest		2

Scale: 1:500 @ A3

File No: 103864 Rambol Artfield V150 SPA 01032021.dwg

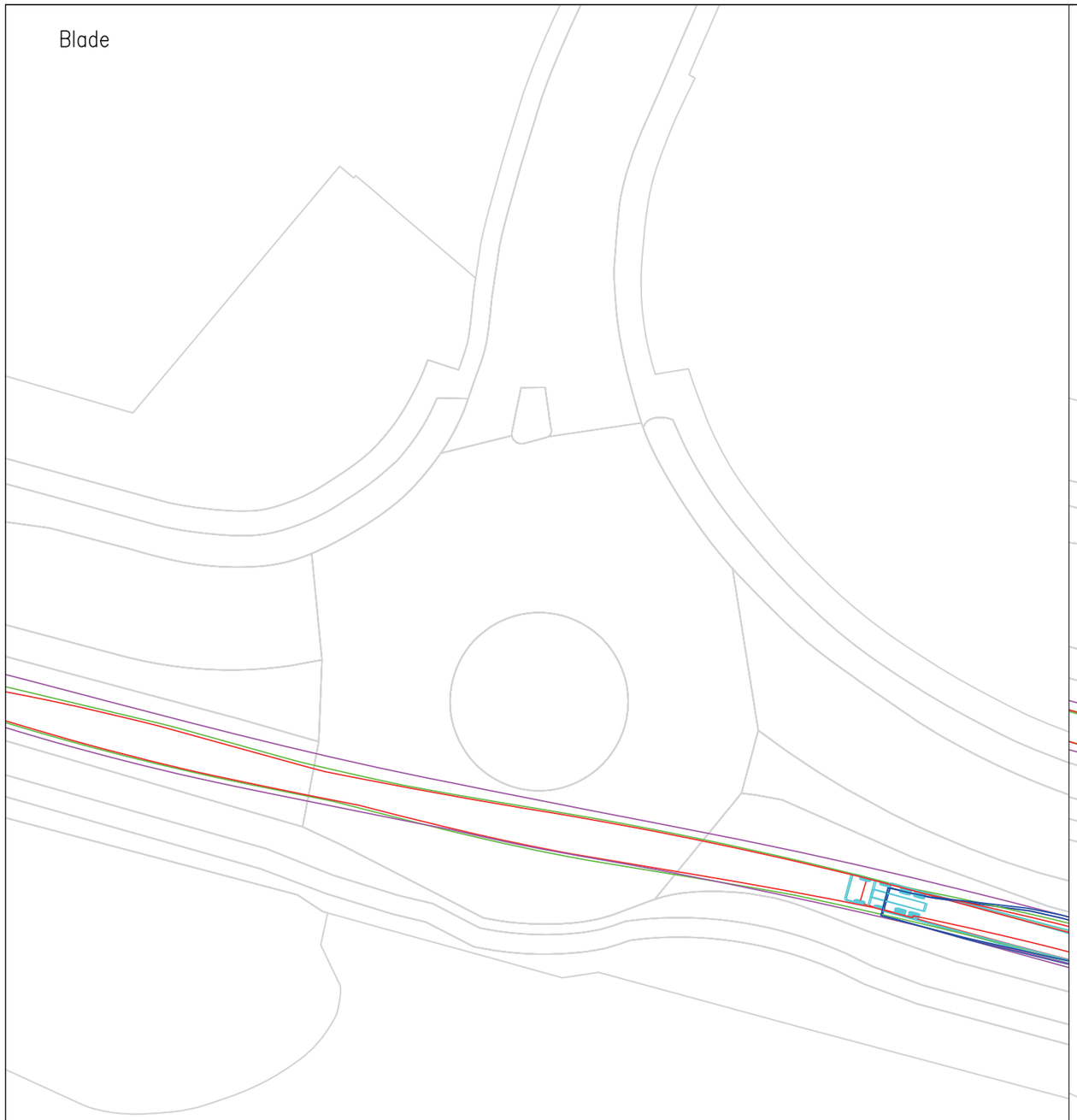
Drawing Status: Draft

Drawing No.: SK02A

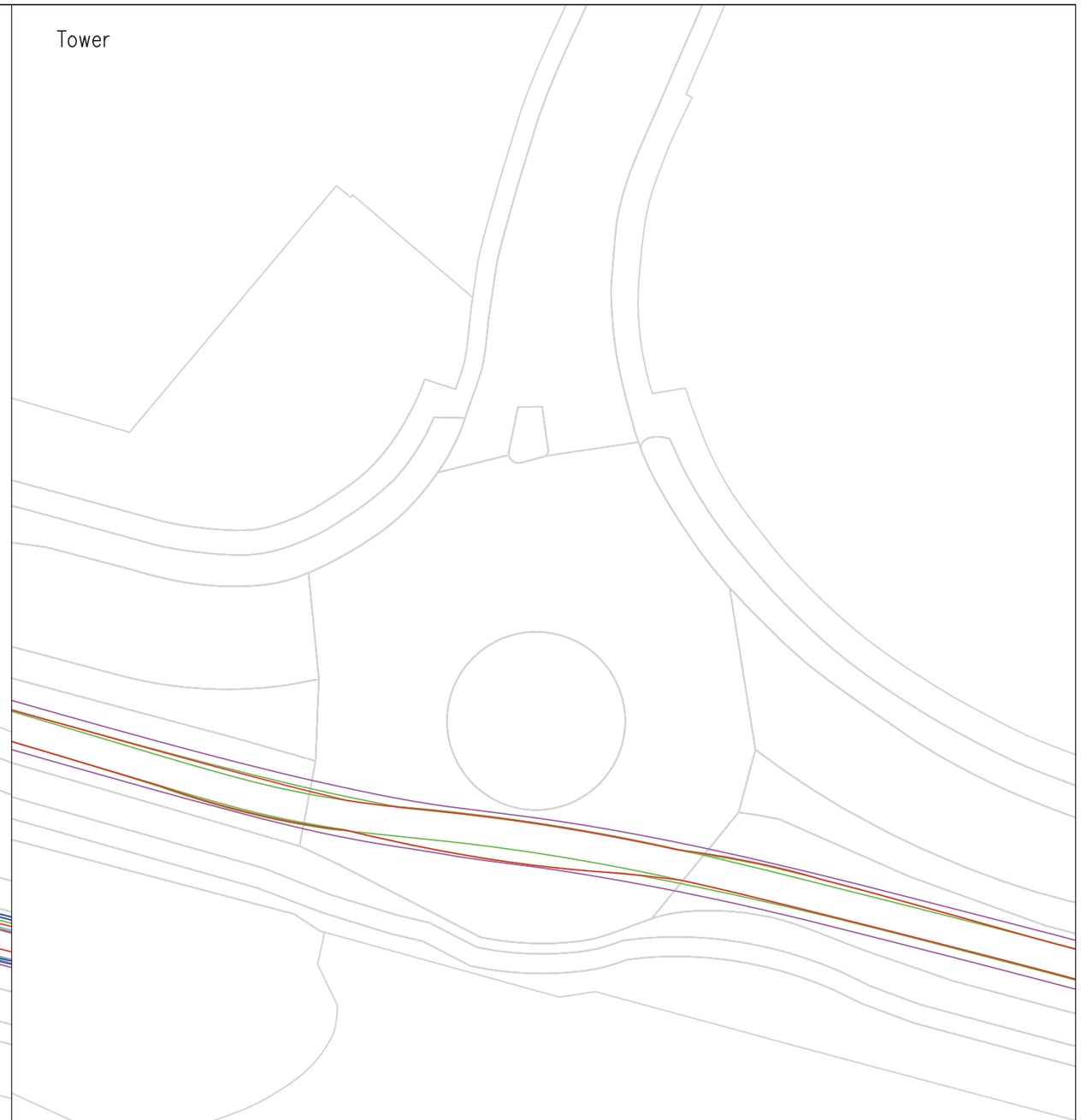
Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: XXX

Blade



Tower



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93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Rambol

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

Project: Artfield Wind Farm

Drawing Title: V150 Blade and Tower

NO MITIGATION

SPA Location: Kings Inch Drive Roundabout 3

	Name	Date
Drawn	JS	01/03/2021
Designed	CN	01/03/2021
Checked	TL	01/03/2021
Point of Interest		3

Scale: 1:500 @ A3

File No: 103864 Rambol Artfield V150 SPA 01032021.dwg

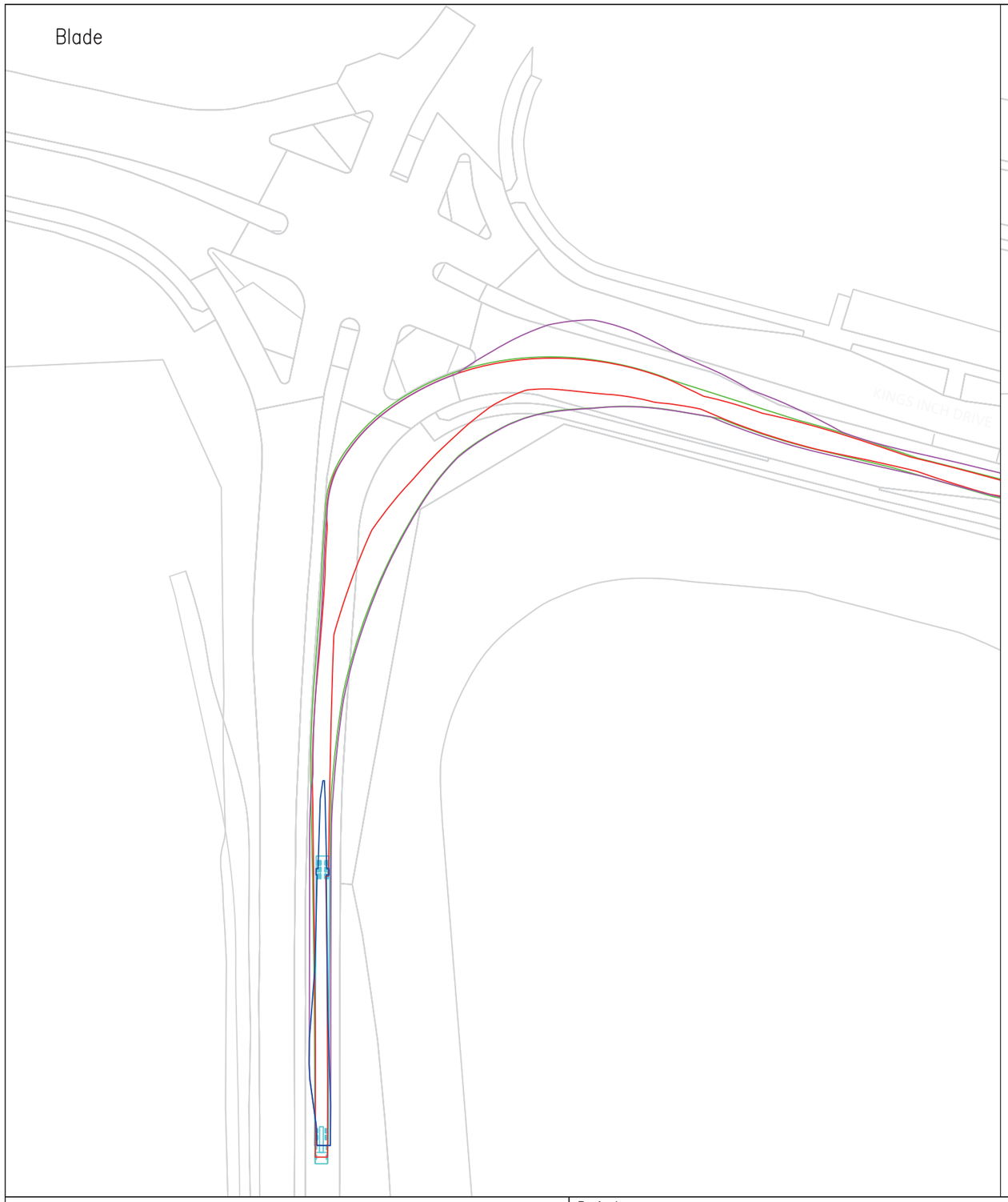
Drawing Status: Draft

Drawing No.: SK03

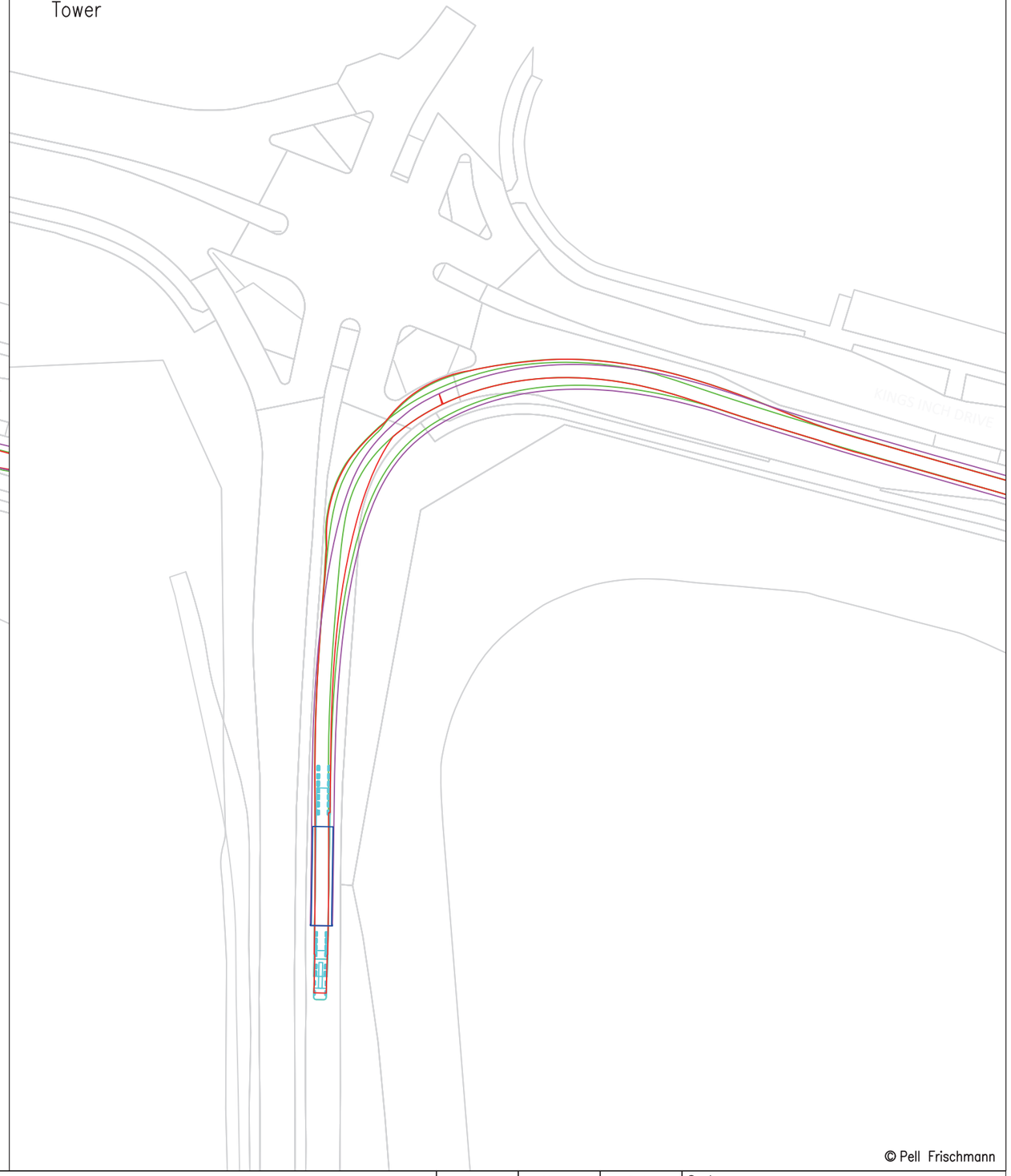
Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: XXX

Blade



Tower



Pell Frischmann
93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Rambol

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over–run | Over–sail

Project: Artfield Wind Farm

Drawing Title: V150 Blade and Tower

SPA Location: Kings Inch Drive / Mayo Avenue Junction

	Name	Date
Drawn	JS	01/03/2021
Designed	CN	01/03/2021
Checked	TL	01/03/2021
Point of Interest		4

Scale: 1:1000 @ A3

File No: 103864 Rambol Artfield V150 SPA 01032021.dwg

Drawing Status: Draft

Drawing No.: SK04

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: XXX

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93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
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Client: Rambol

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

Project: Artfield Wind Farm

Drawing Title: V150 Blade and Tower

SPA Location: Kings Inch Drive / Mayo Avenue Junction

	Name	Date
Drawn	JS	01/03/2021
Designed	CN	01/03/2021
Checked	TL	01/03/2021
Point of Interest		4

Scale: 1:500 @ A3

File No: 103864 Rambol Artfield V150 SPA 01032021.dwg

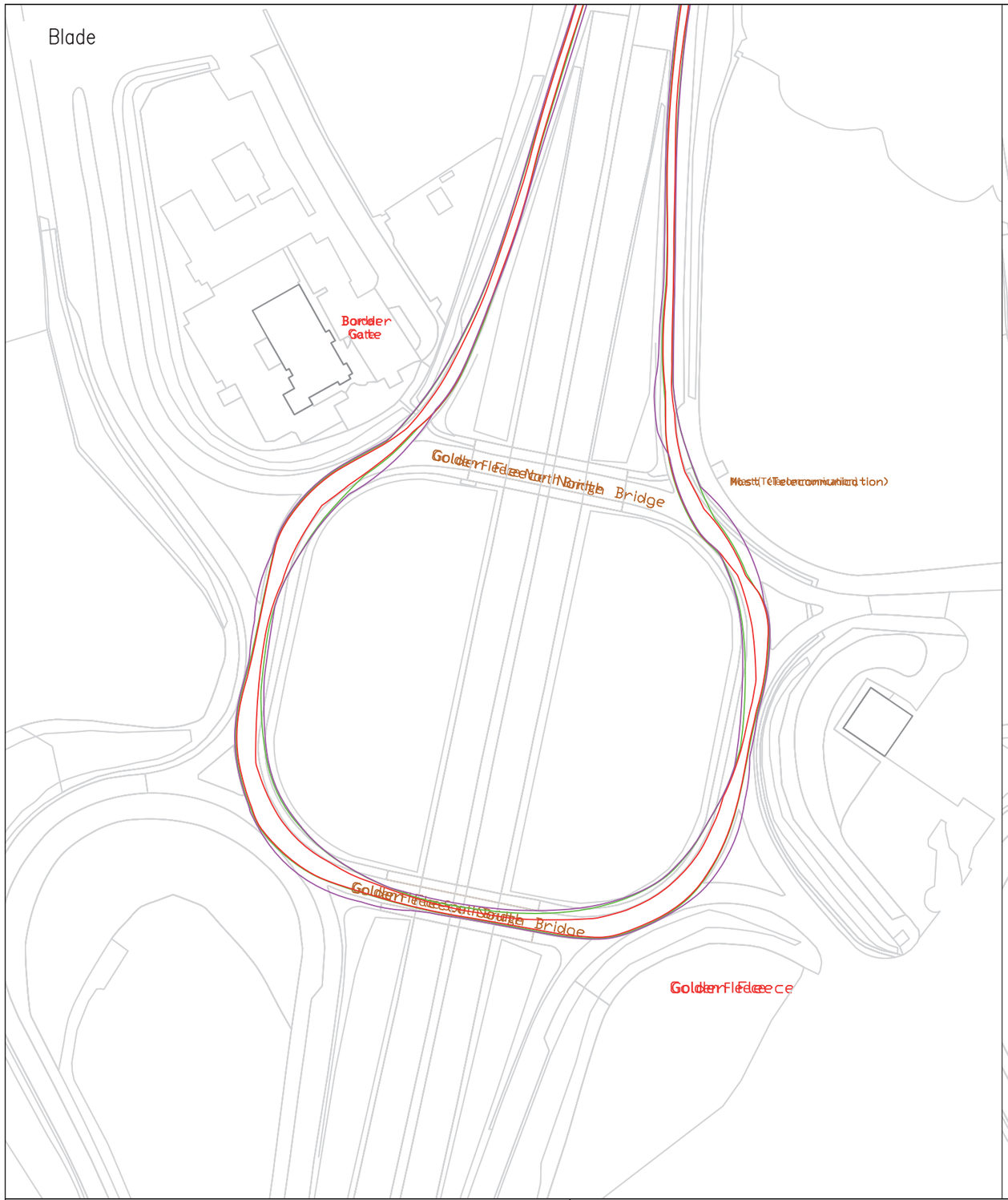
Drawing Status: Draft

Drawing No.: SK04A

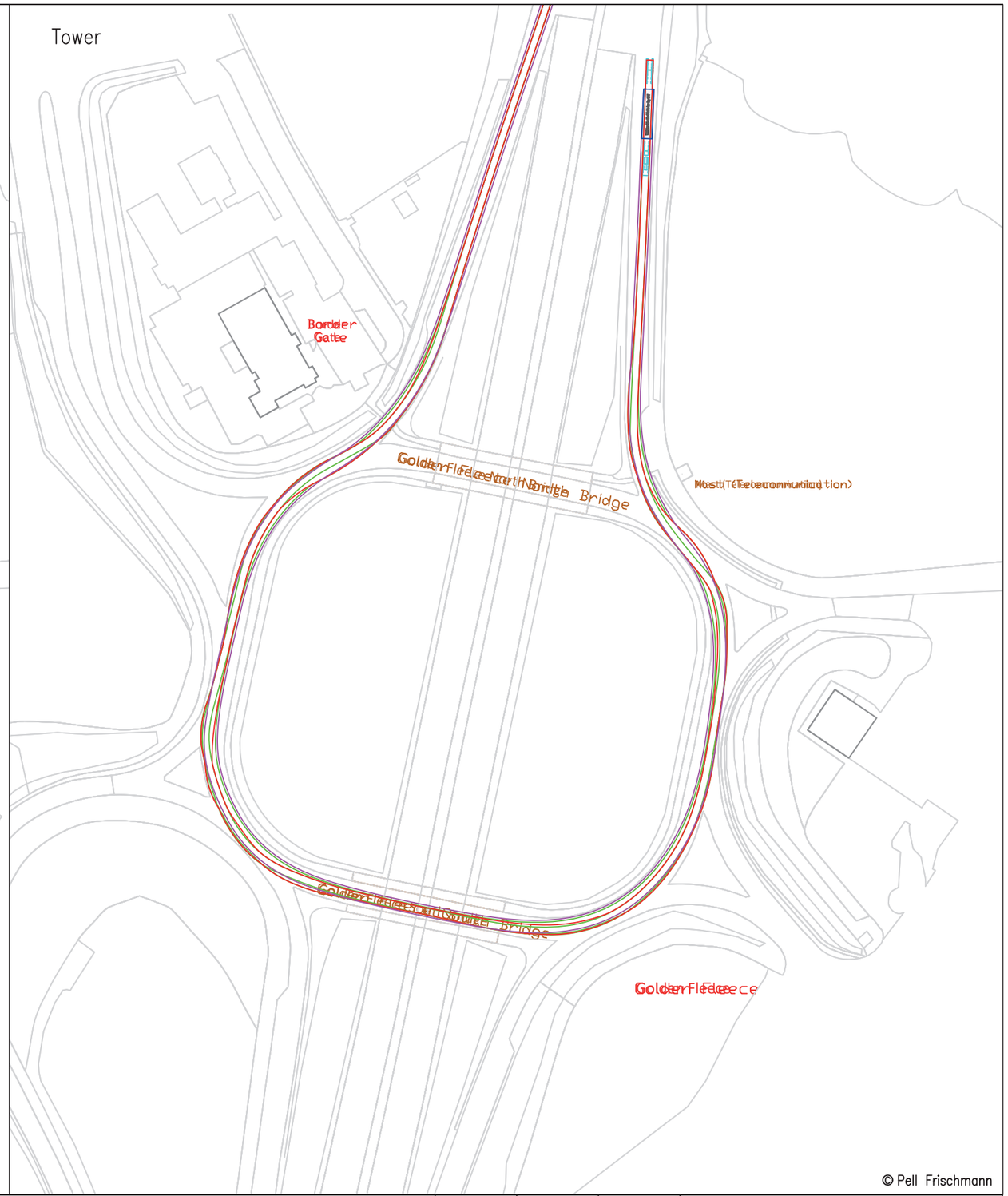
Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: XXX

Blade



Tower



Pell Frischmann
93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Rambol

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

Project: Artfield Wind Farm

Drawing Title: V150 Blade and Tower

SPA Location: M6 Junction 42

	Name	Date
Drawn	JS	01/03/2021
Designed	CN	01/03/2021
Checked	TL	01/03/2021
Point of Interest		6

Scale: Custom @ A3

File No: 103864 Rambol Artfield V150 SPA 01032021.dwg

Drawing Status: Draft

Drawing No.: SK05

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: XXX

Vegetation to be cleared.
One road sign to be removed.

Loads to oversail
crash barrier.

Two road signs to be removed.

Golden Fleece North Bridge

Mast (Telecommunication)

Proximity to lighting columns to be
confirmed during the test run.

One road sign to be removed.

Loads to oversail crash barrier.
One lit chevron sign to be removed.

Loads to oversail crash barrier.
One lit chevron sign to be removed.
Vegetation to be trimmed back.

Loads to oversail crash barrier.
One lit chevron sign to be removed.
Vegetation to be trimmed back.

Loads to oversail crash barrier.
One lit chevron sign to be removed.

One road sign to be removed.
Proximity to lighting columns to be
confirmed during the test run.

One road sign to be removed.
Proximity to lighting columns to be
confirmed during the test run.

Golden Fleece South Bridge

Pell Frischmann
93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Rambol

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

Project: Artfield Wind Farm

Drawing Title: V150 Blade and Tower

SPA Location: M6 Junction 42

	Name	Date
Drawn	JS	01/03/2021
Designed	CN	01/03/2021
Checked	TL	01/03/2021
Point of Interest		6

Scale: 1:1000 @ A3

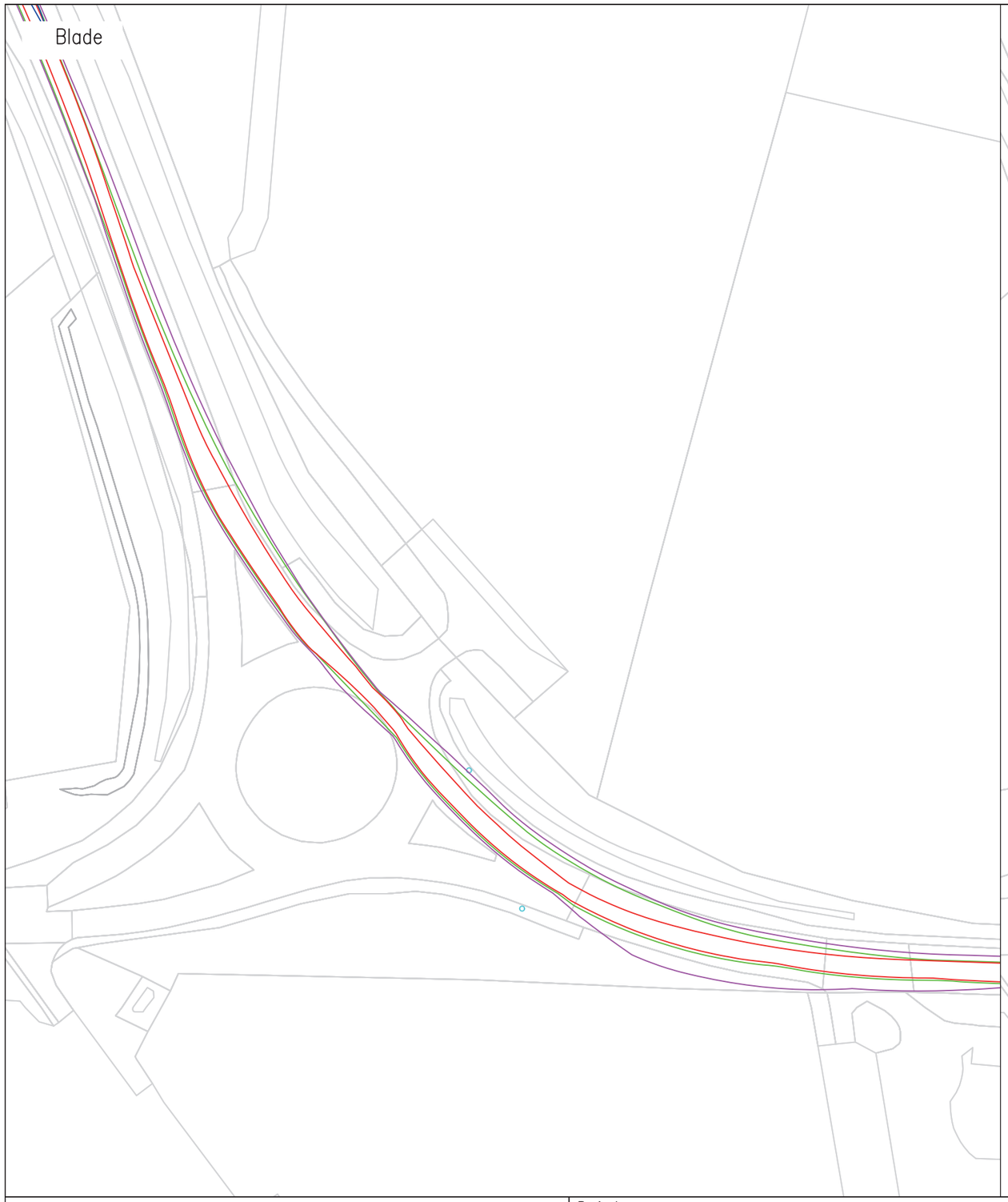
File No: 103864 Rambol Artfield V150 SPA 01032021.dwg

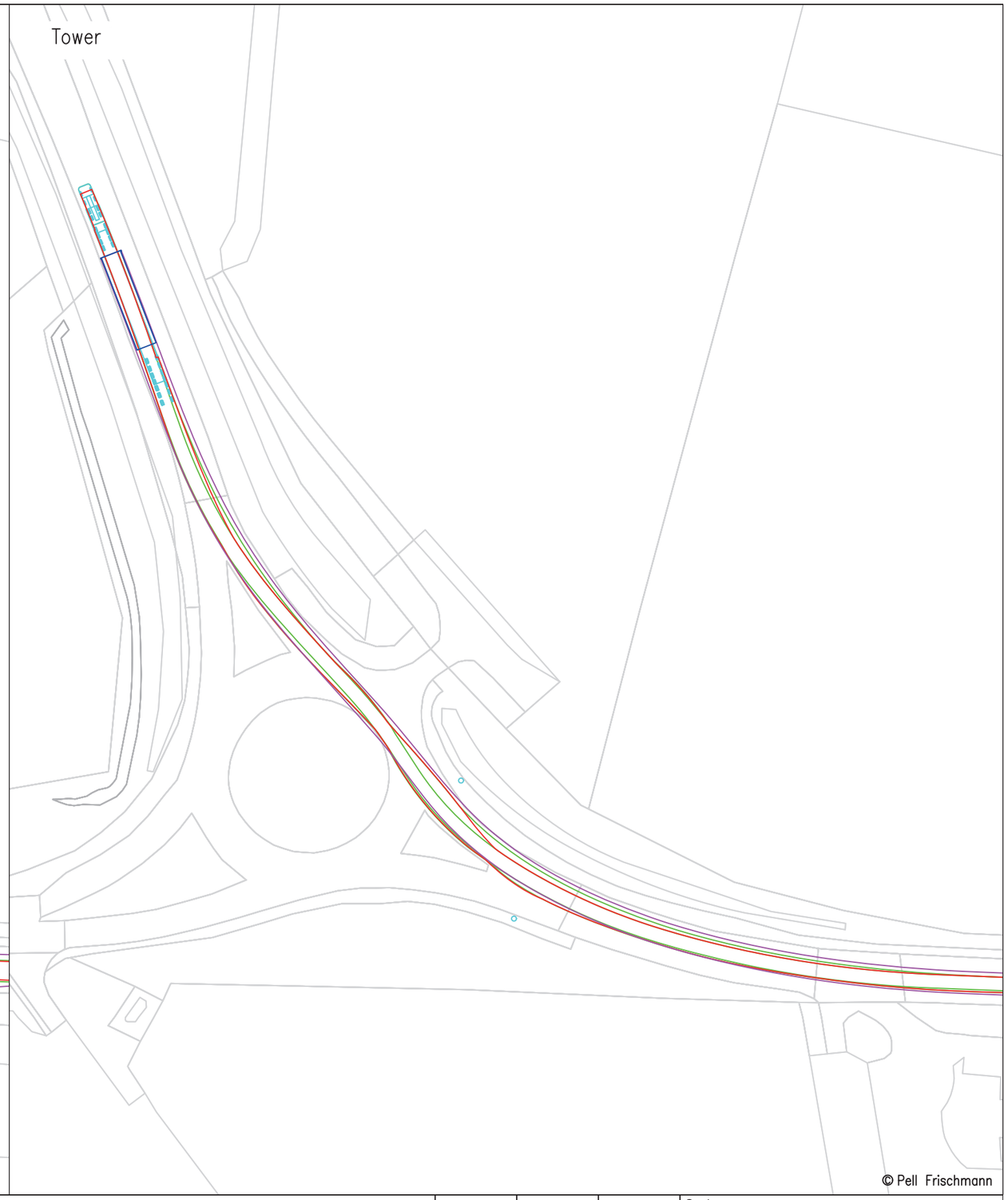
Drawing Status: Draft

Drawing No.: SK05A

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: XXX





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93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Rambol

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

Project: Artfield Wind Farm

Drawing Title: V150 Blade and Tower

SPA Location: A75 / A780 Roundabout

	Name	Date
Drawn	JS	01/03/2021
Designed	CN	01/03/2021
Checked	TL	01/03/2021
Point of Interest		8

Scale: 1:1000 @ A3

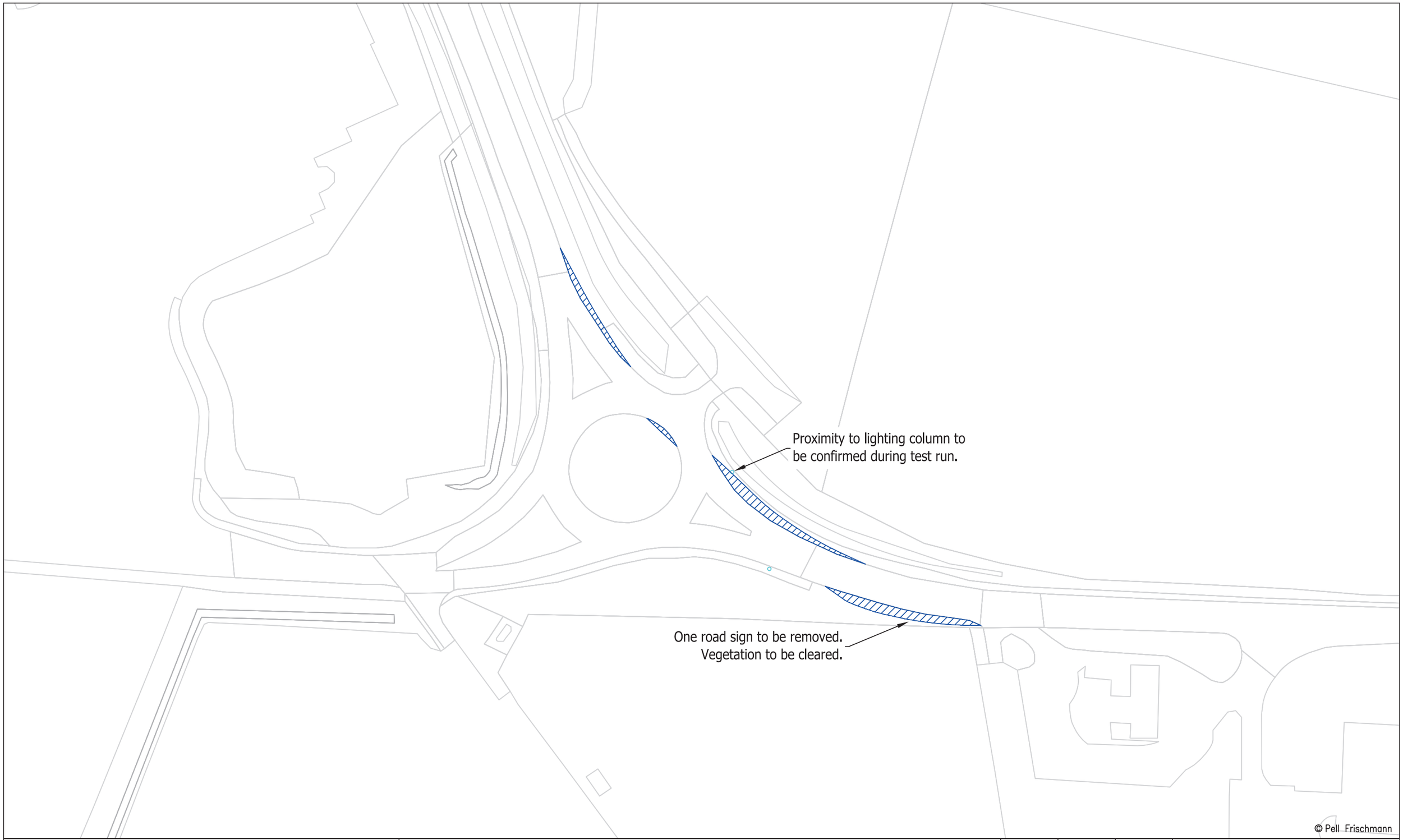
File No: 103864 Rambol Artfield V150 SPA 01032021.dwg

Drawing Status: Draft

Drawing No.: SK06

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: XXX



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93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
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www.pellfrischmann.com

Client: Rambol

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

Project: Artfield Wind Farm

Drawing Title: V150 Blade and Tower

SPA Location: A75 / A780 Roundabout

	Name	Date
Drawn	JS	01/03/2021
Designed	CN	01/03/2021
Checked	TL	01/03/2021
Point of Interest		8

Scale: 1:1000 @ A3

File No: 103864 Rambol Artfield V150 SPA 01032021.dwg

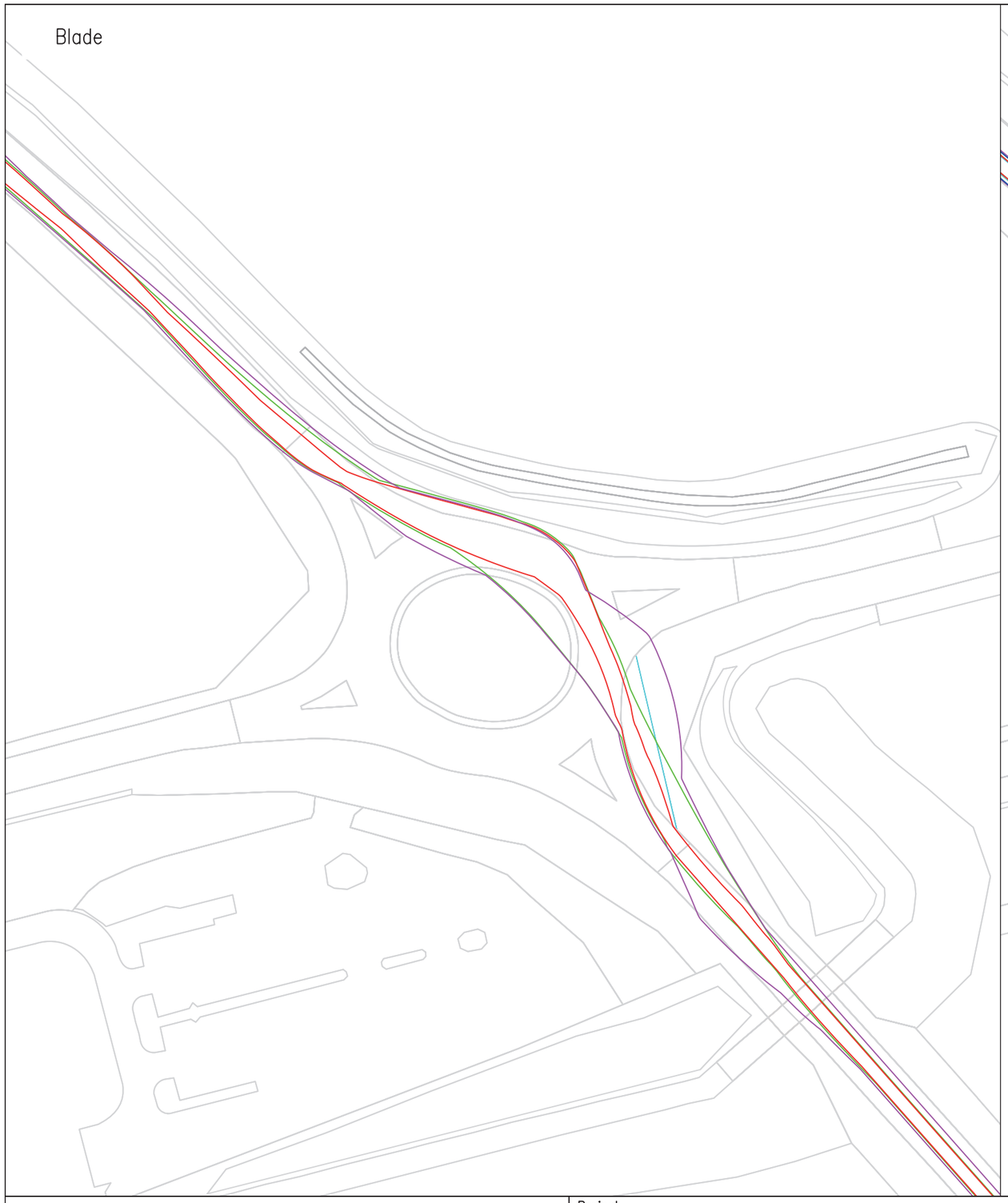
Drawing Status: Draft

Drawing No.: SK06A

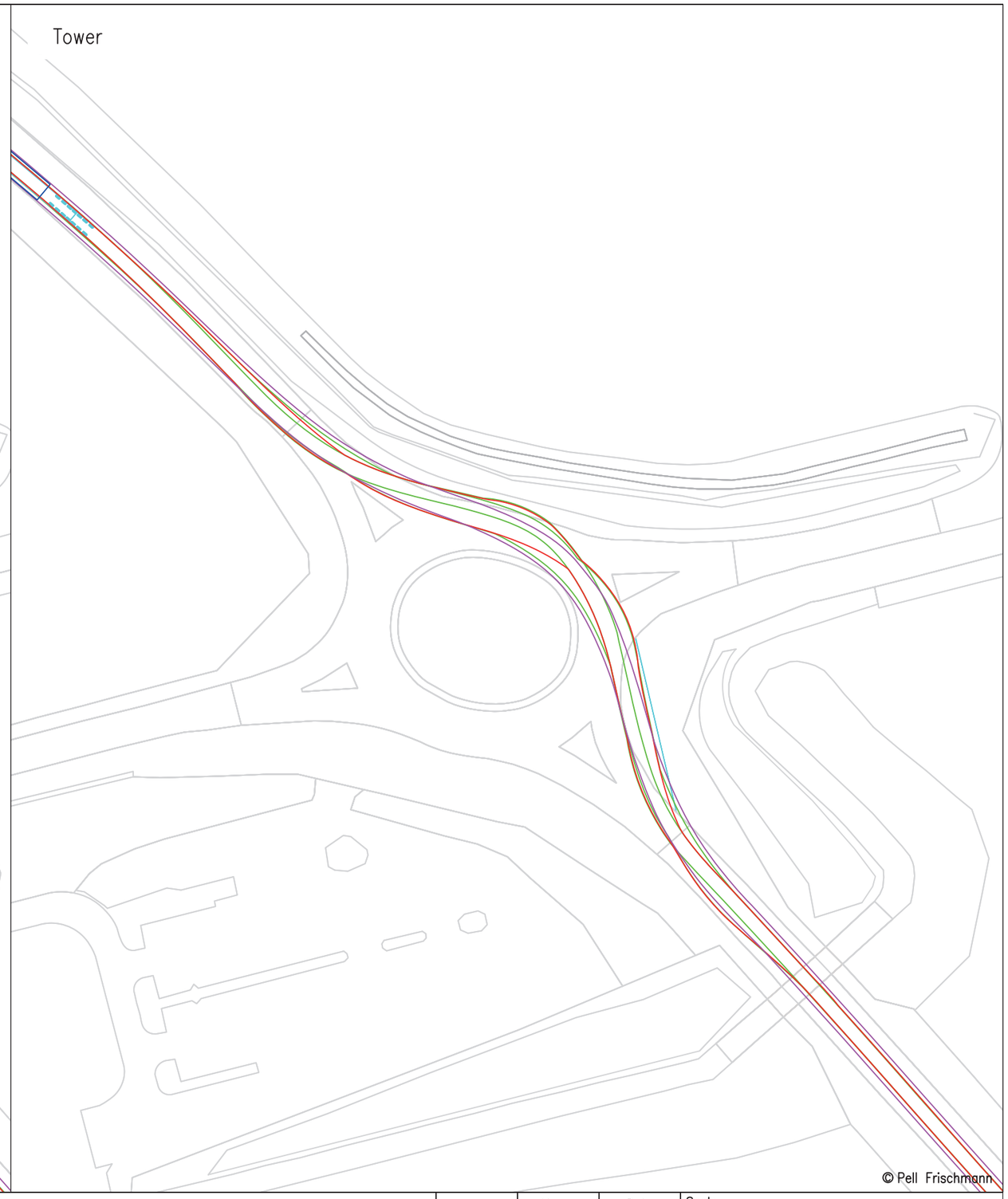
Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: XXX

Blade



Tower



Pell Frischmann
93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Rambol

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

Project: Artfield Wind Farm

Drawing Title: V150 Blade and Tower

SPA Location: A75 / A709 Roundabout

	Name	Date
Drawn	JS	01/03/2021
Designed	CN	01/03/2021
Checked	TL	01/03/2021
Point of Interest		9

Scale: 1:1000 @ A3

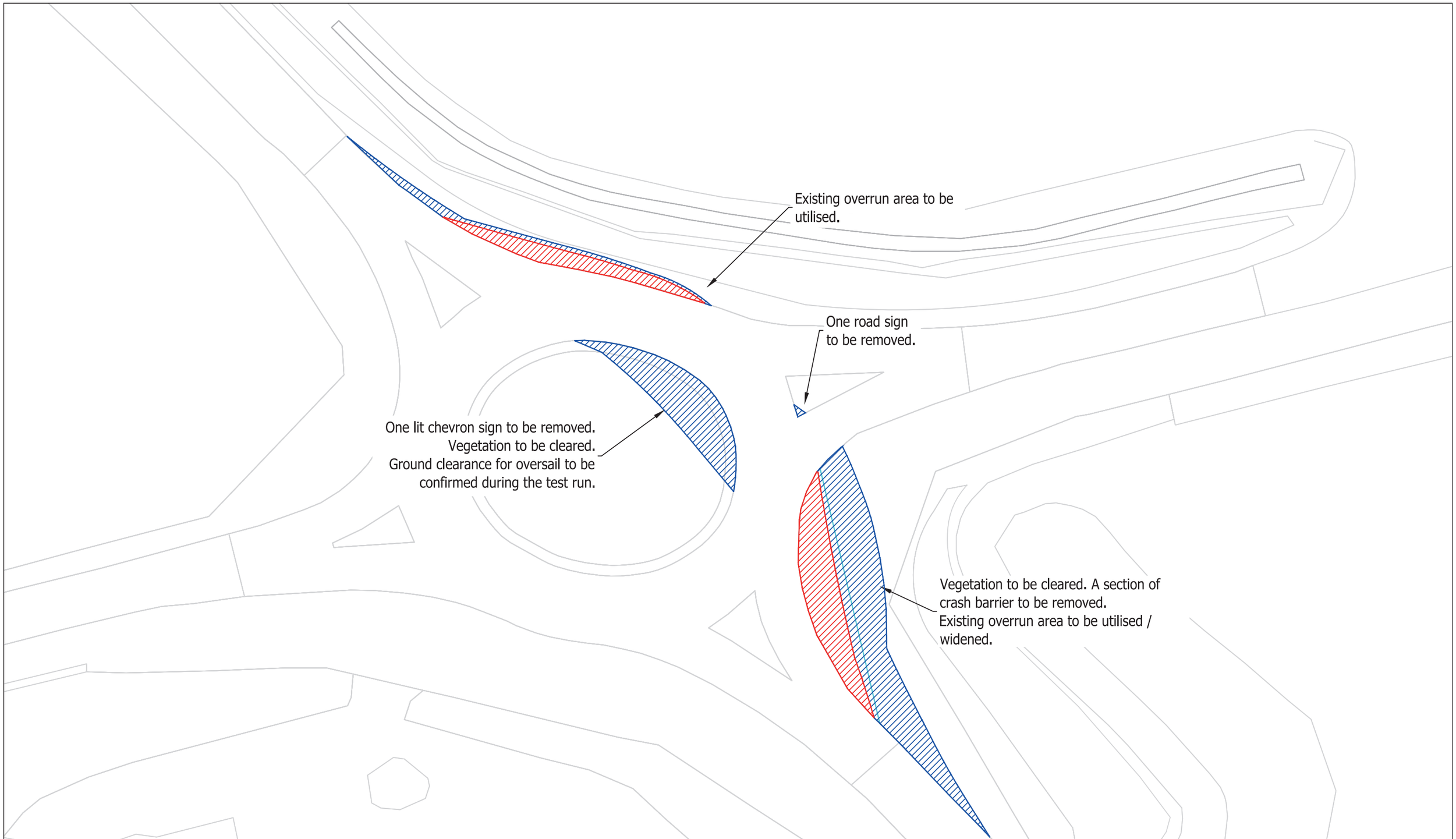
File No: 103864 Rambol Artfield V150 SPA 01032021.dwg

Drawing Status: Draft

Drawing No.: SK07

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: XXX



Pell Frischmann
93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Rambol

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

Project: Artfield Wind Farm

Drawing Title: V150 Blade and Tower

SPA Location: A75 / A709 Roundabout

	Name	Date
Drawn	JS	01/03/2021
Designed	CN	01/03/2021
Checked	TL	01/03/2021
Point of Interest		9

Scale: 1:500 @ A3

File No: 103864 Rambol Artfield V150 SPA 01032021.dwg

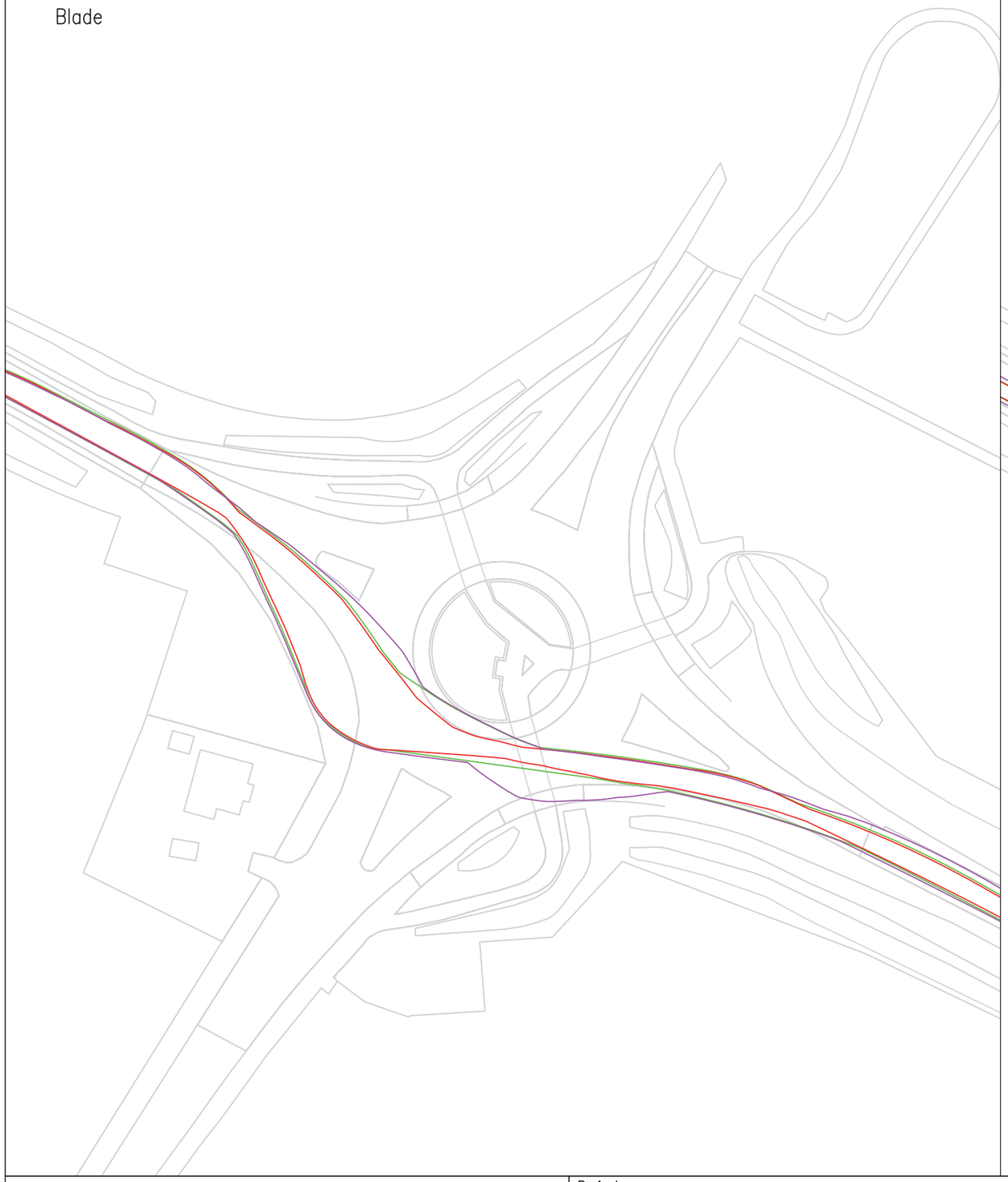
Drawing Status: Draft

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: XXX

Blade



Tower

Pell Frischmann
93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Rambol

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

Project: Artfield Wind Farm

Drawing Title: V150 Blade and Tower

SPA Location: A75 / A701 Roundabout

	Name	Date
Drawn	JS	01/03/2021
Designed	CN	01/03/2021
Checked	TL	01/03/2021
Point of Interest		10

Scale: 1:1000 @ A3

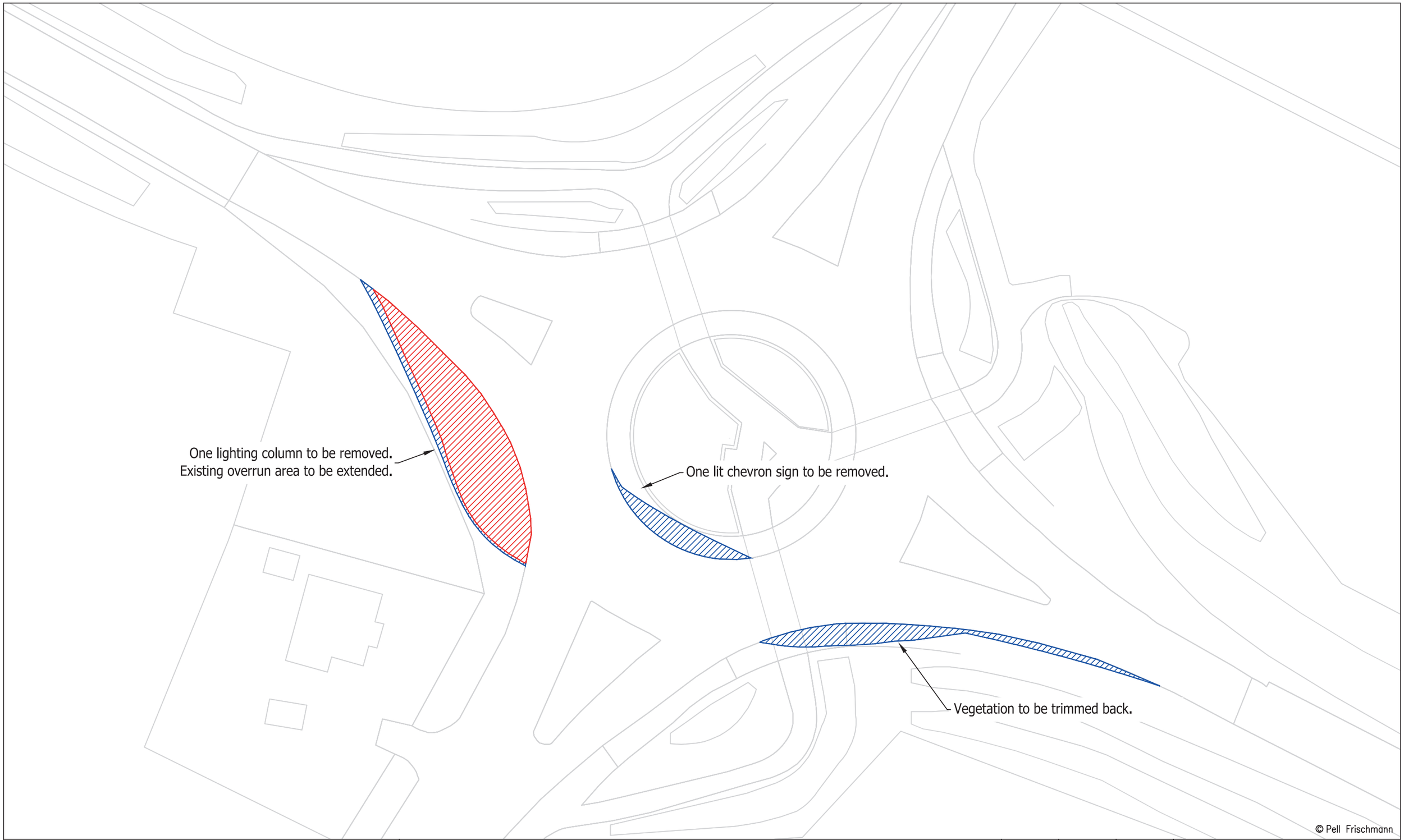
File No: 103864 Rambol Artfield V150 SPA 01032021.dwg

Drawing Status: Draft

Drawing No.: SK08

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: XXX



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93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Rambol

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

Project: Artfield Wind Farm

Drawing Title: V150 Blade and Tower

SPA Location: A75 / A701 Roundabout

	Name	Date
Drawn	JS	01/03/2021
Designed	CN	01/03/2021
Checked	TL	01/03/2021
Point of Interest		10

Scale: 1:500 @ A3

File No: 103864 Rambol Artfield V150 SPA 01032021.dwg

Drawing Status: Draft

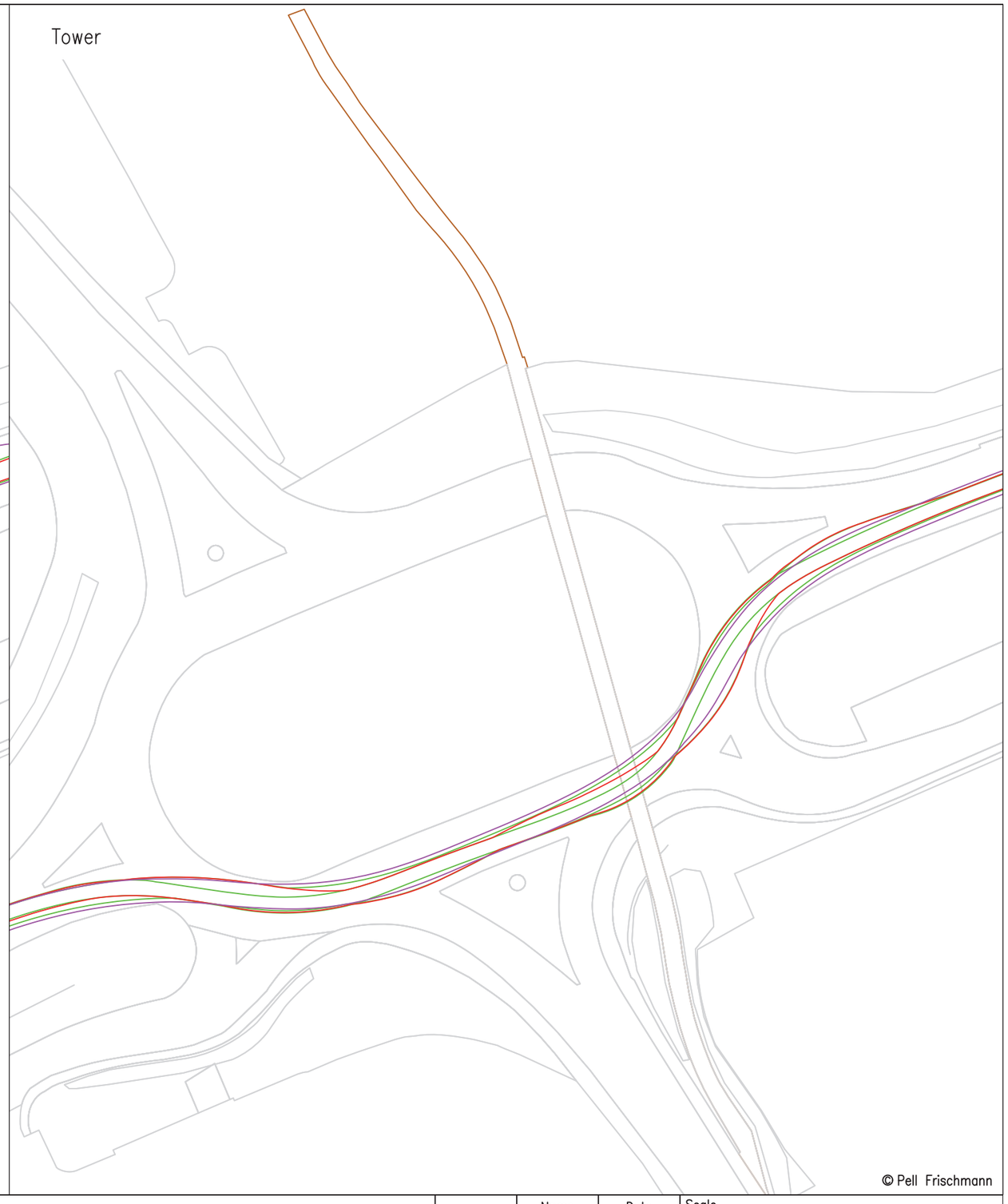
Drawing No.: SK08A

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: XXX

Blade

Tower



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93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Rambol

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

Project: Artfield Wind Farm

Drawing Title: V150 Blade and Tower

SPA Location: A75 / A76 Roundabout

	Name	Date
Drawn	JS	01/03/2021
Designed	CN	01/03/2021
Checked	TL	01/03/2021
Point of Interest		11

Scale: 1:1000 @ A3

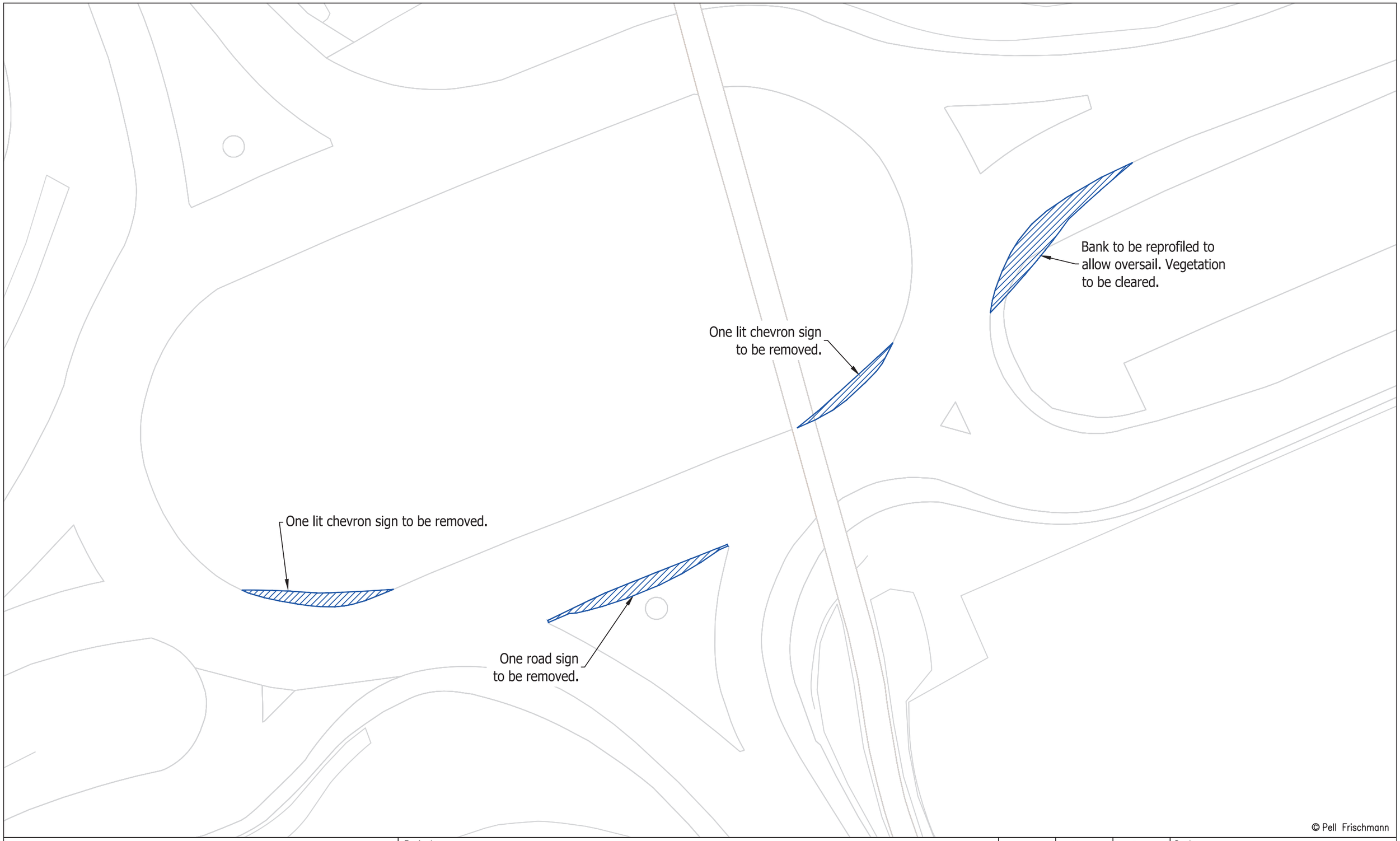
File No: 103864 Rambol Artfield V150 SPA 01032021.dwg

Drawing Status: Draft

Drawing No.: SK09

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: XXX



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93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Rambol

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

Project: Artfield Wind Farm

Drawing Title: V150 Blade and Tower

SPA Location: A75 / A76 Roundabout

	Name	Date
Drawn	JS	01/03/2021
Designed	CN	01/03/2021
Checked	TL	01/03/2021
Point of Interest		11

Scale: 1:500 @ A3

File No: 103864 Rambol Artfield V150 SPA 01032021.dwg

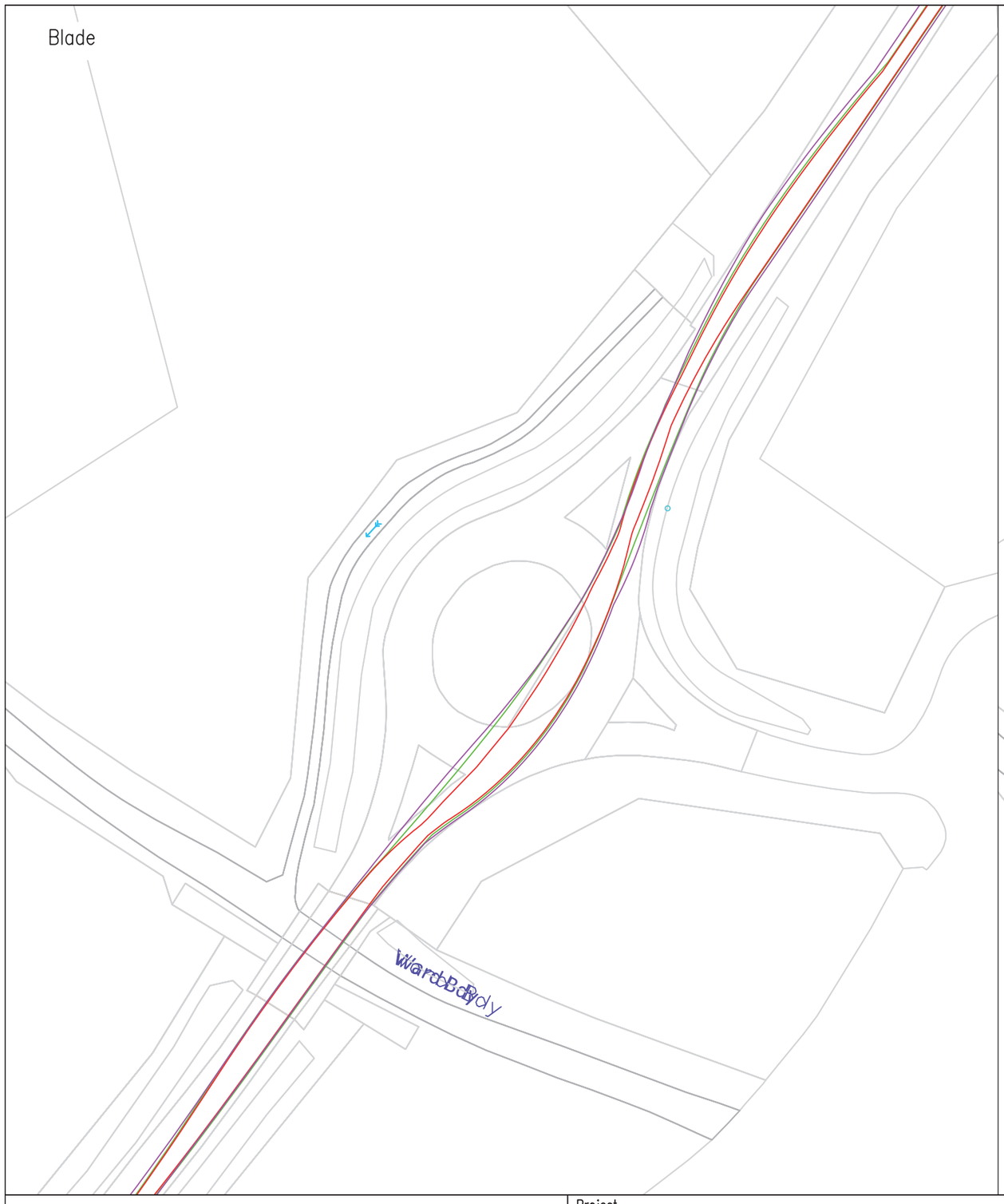
Drawing Status: Draft

Drawing No.: SK09A

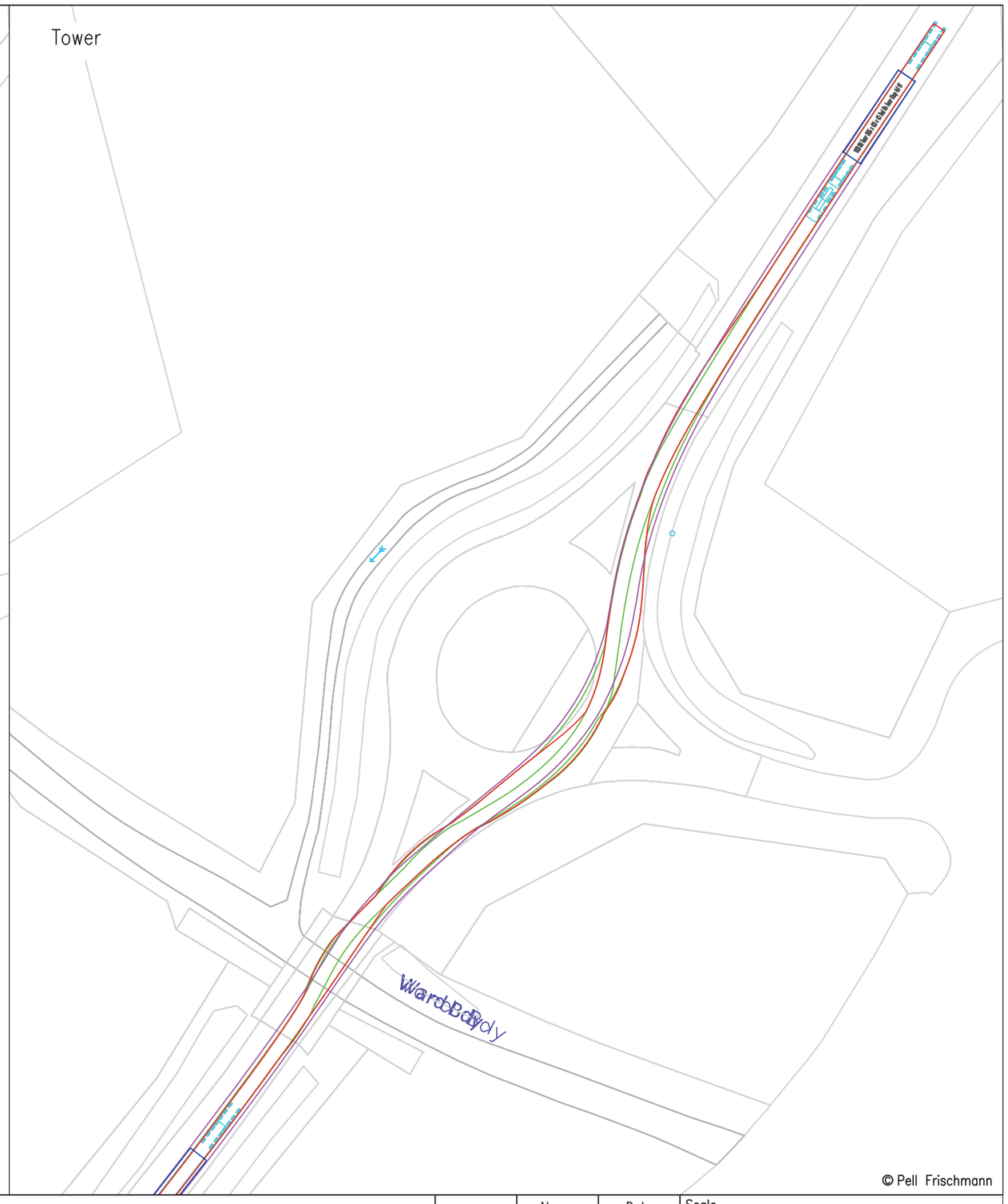
Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: XXX

Blade



Tower



Pell Frischmann
93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Rambol

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

Project: Artfield Wind Farm

Drawing Title: V150 Blade and Tower

SPA Location: A75 / A780 Roundabout

	Name	Date
Drawn	JS	01/03/2021
Designed	CN	01/03/2021
Checked	TL	01/03/2021
Point of Interest		12

Scale: 1:1000 @ A3

File No: 103864 Rambol Artfield V150 SPA 01032021.dwg

Drawing Status: Draft

Drawing No.: SK10

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: XXX

Pell Frischmann
93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Rambol

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

Project: Artfield Wind Farm

Drawing Title: V150 Blade and Tower

SPA Location: A75 / A780 Roundabout

	Name	Date
Drawn	JS	01/03/2021
Designed	CN	01/03/2021
Checked	TL	01/03/2021
Point of Interest		12

Scale: 1:500 @ A3

File No: 103864 Rambol Artfield V150 SPA 01032021.dwg

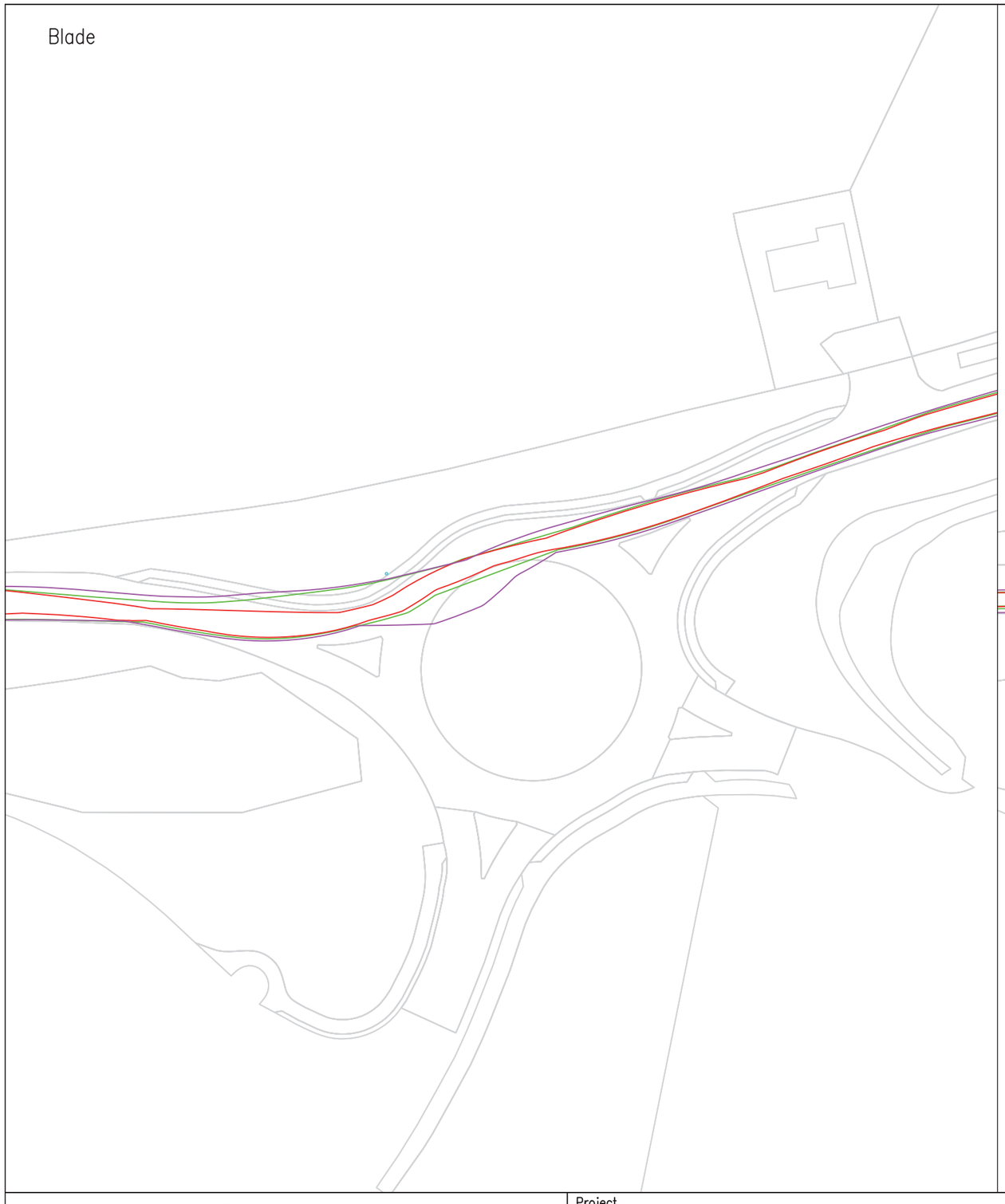
Drawing Status: Draft

Drawing No.: SK10A

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: XXX

Blade



Tower

Pell Frischmann
93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Rambol

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over–run | Over–sail

Project: Artfield Wind Farm

Drawing Title: V150 Blade and Tower

SPA Location: A75 / Garroch Roundabout

	Name	Date
Drawn	JS	01/03/2021
Designed	CN	01/03/2021
Checked	TL	01/03/2021
Point of Interest		13

Scale: 1:1000 @ A3

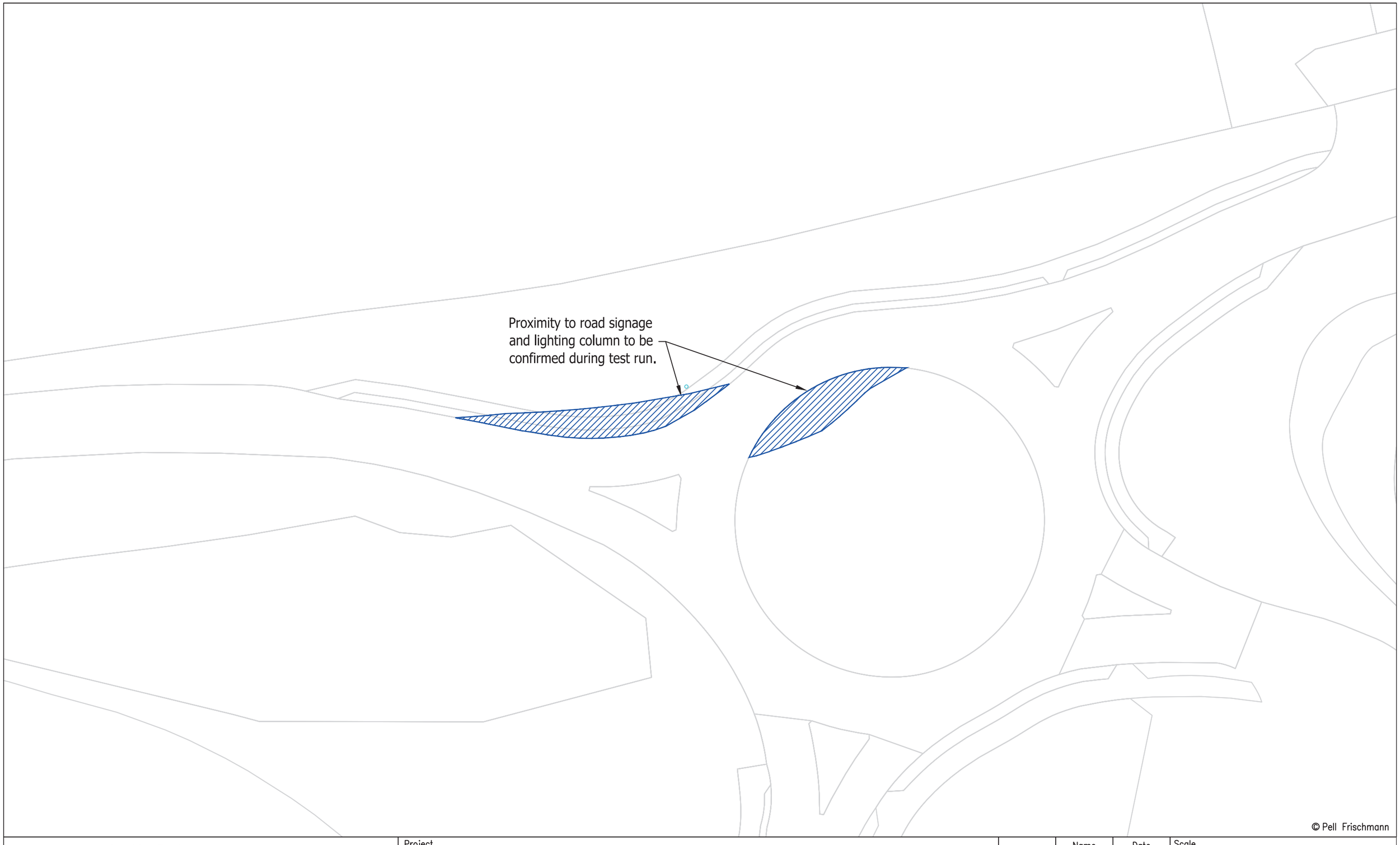
File No: 103864 Rambol Artfield V150 SPA 01032021.dwg

Drawing Status: Draft

Drawing No.: SK11

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: XXX



Pell Frischmann
93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Rambol

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over–run | Over–sail

Project: Artfield Wind Farm

Drawing Title: V150 Blade and Tower

SPA Location: A75 / Garroch Roundabout

	Name	Date
Drawn	JS	01/03/2021
Designed	CN	01/03/2021
Checked	TL	01/03/2021
Point of Interest		13

Scale: 1:500 @ A3

File No: 103864 Rambol Artfield V150 SPA 01032021.dwg

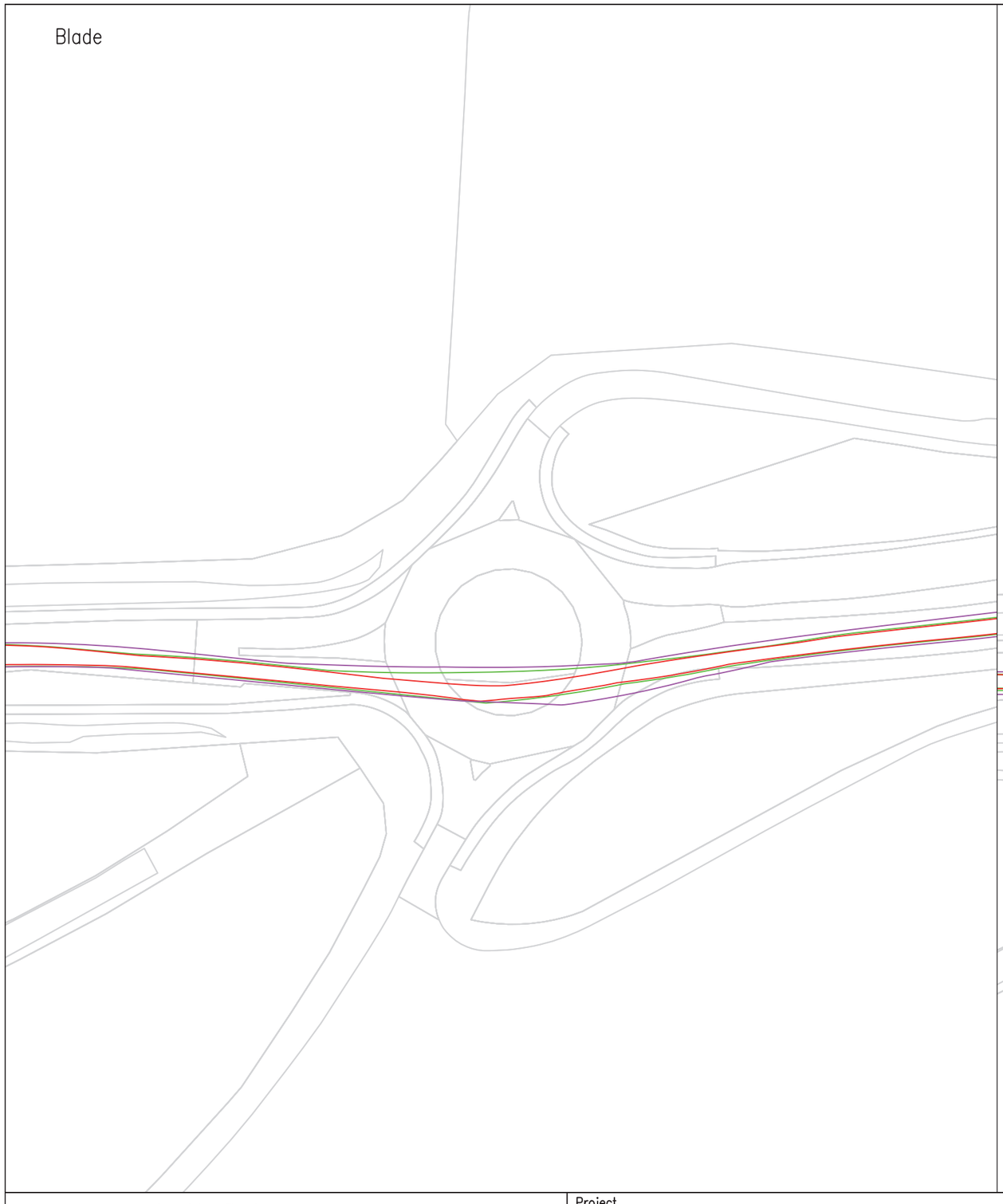
Drawing Status: Draft

Drawing No.: SK11A

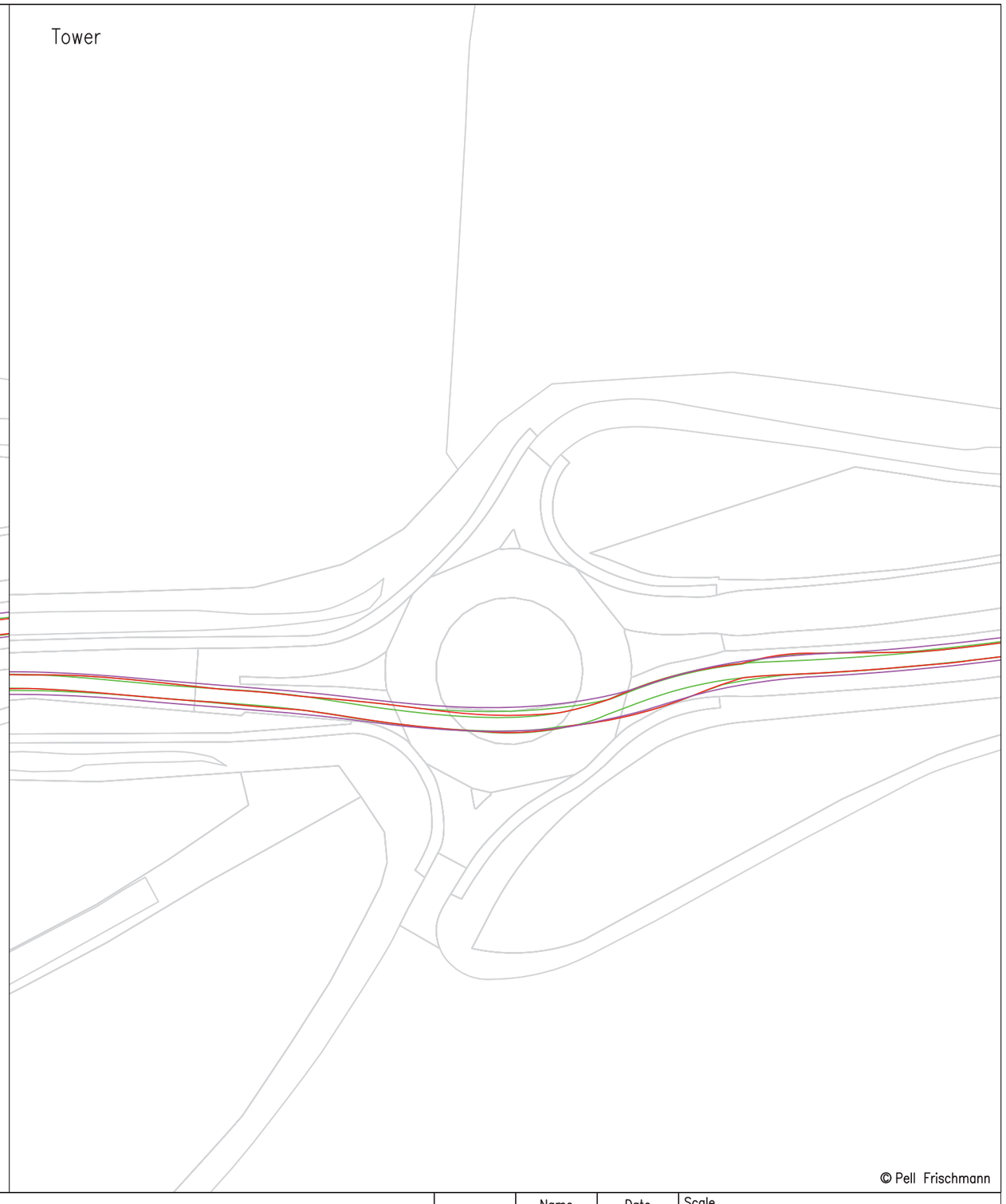
Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: XXX

Blade



Tower



Pell Frischmann
93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Rambol

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

Project: Artfield Wind Farm

Drawing Title: V150 Blade and Tower

SPA Location: A75 / Drummore Roundabout

	Name	Date
Drawn	JS	01/03/2021
Designed	CN	01/03/2021
Checked	TL	01/03/2021
Point of Interest		14

Scale: 1:1000 @ A3

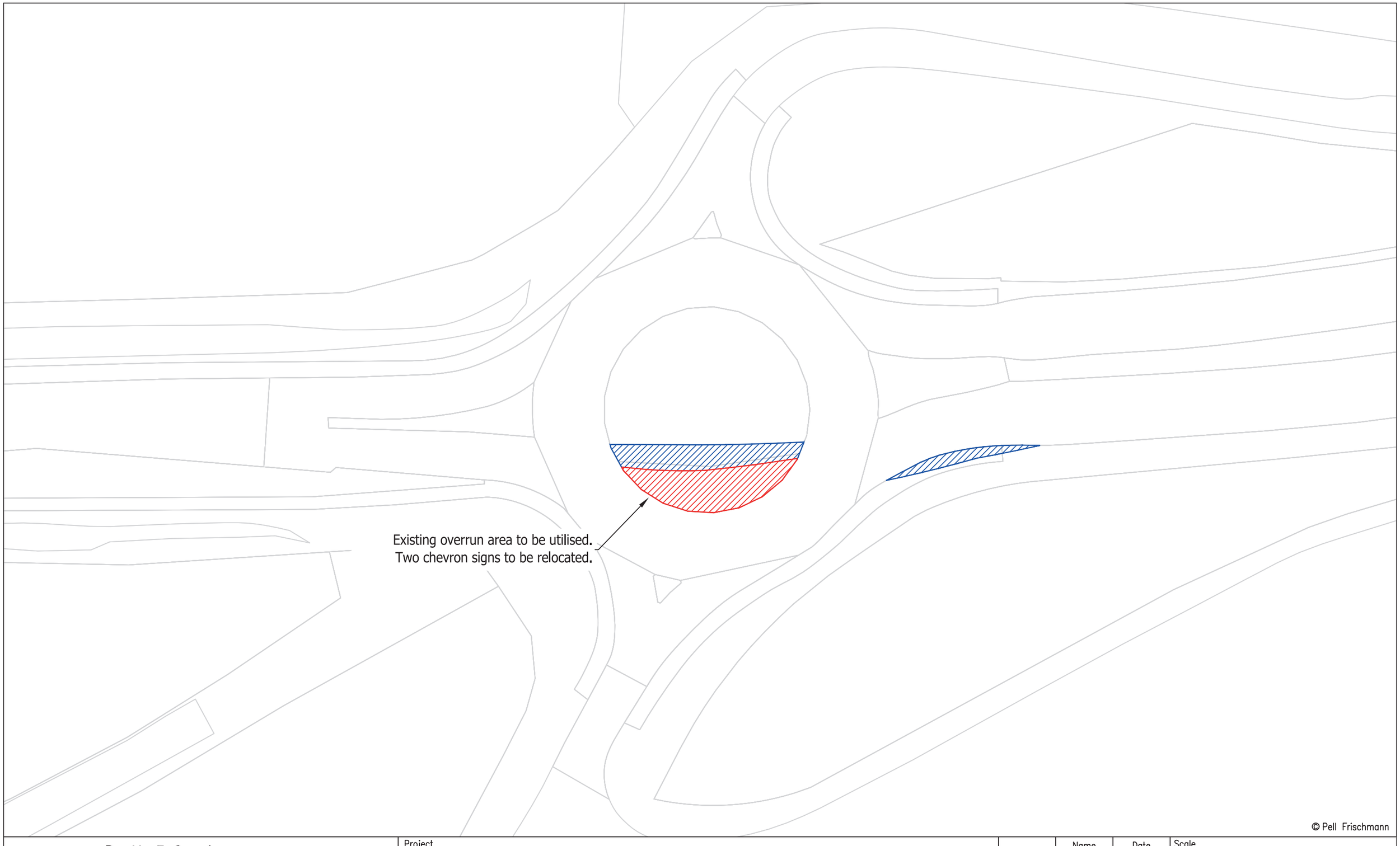
File No.: 103864 Rambol Artfield V150 SPA 01032021.dwg

Drawing Status: Draft

Drawing No.: SK12

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: XXX



Pell Frischmann
93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Rambol

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

Project: Artfield Wind Farm

Drawing Title: V150 Blade and Tower

SPA Location: A75 / Drummore Roundabout

	Name	Date
Drawn	JS	01/03/2021
Designed	CN	01/03/2021
Checked	TL	01/03/2021
Point of Interest		14

Scale: 1:500 @ A3

File No.: 103864 Rambol Artfield V150 SPA 01032021.dwg

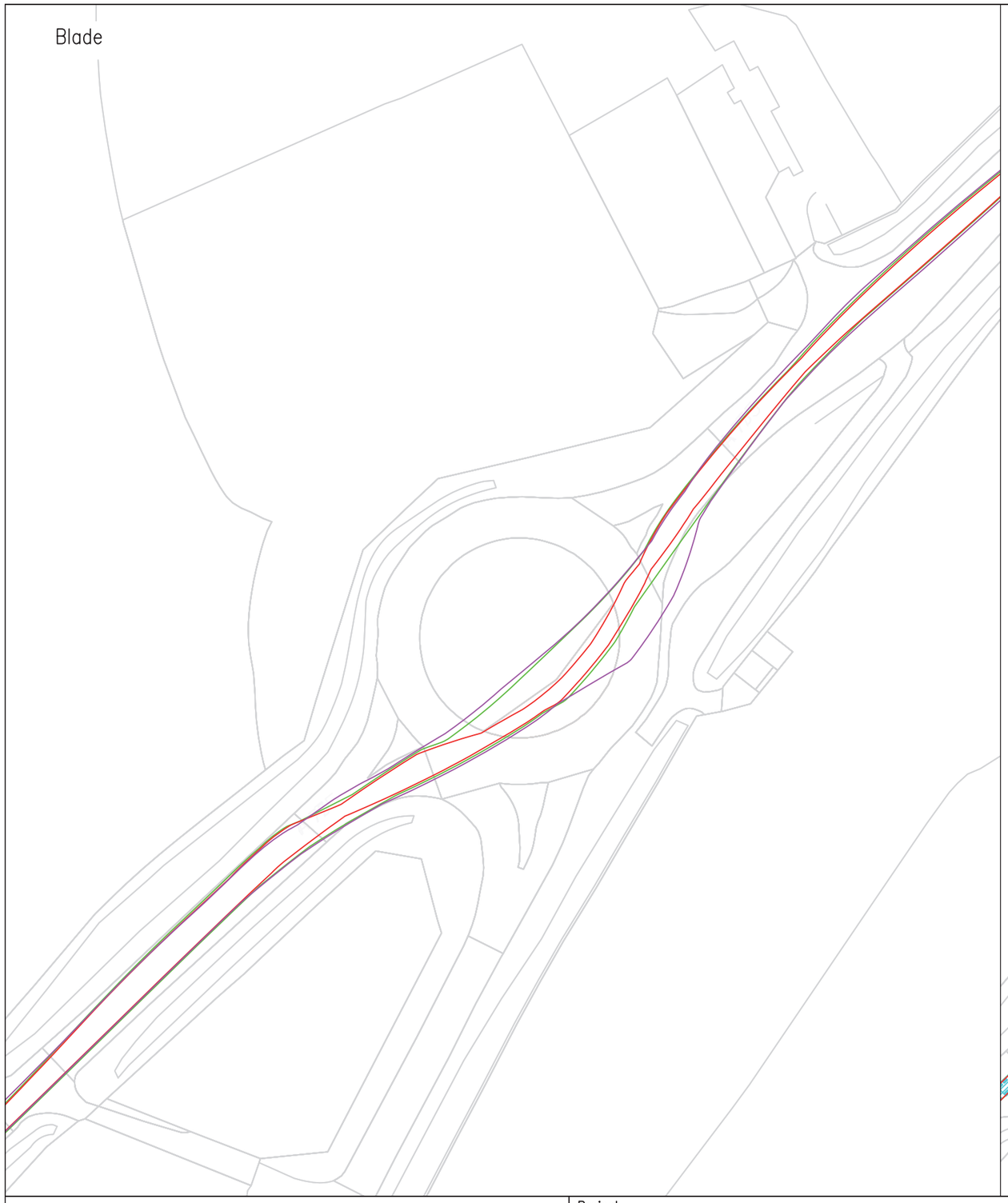
Drawing Status: Draft

Drawing No.: SK12A

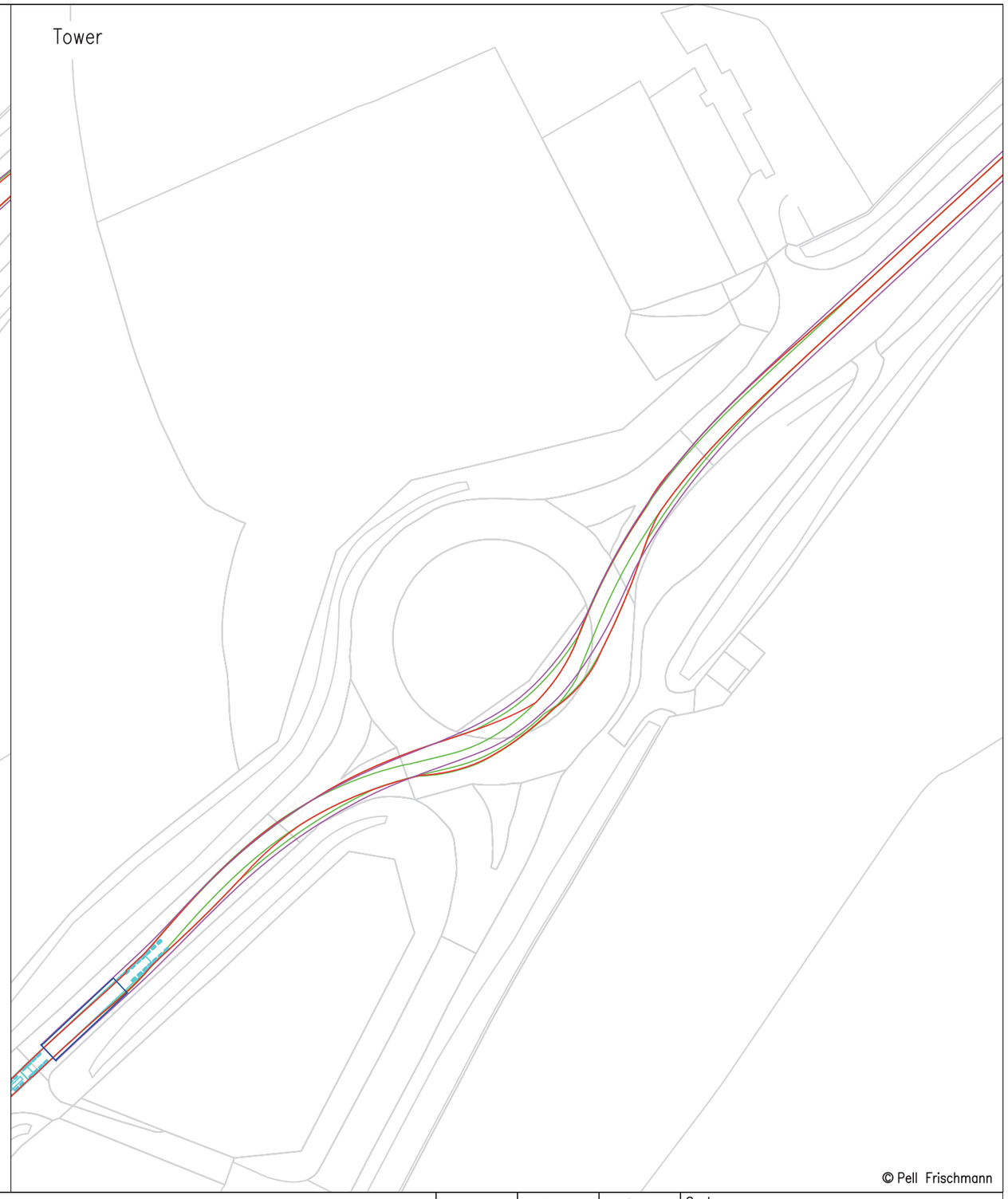
Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: XXX

Blade



Tower



Pell Frischmann
93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Rambol

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

Project: Artfield Wind Farm

Drawing Title: V150 Blade and Tower

SPA Location: A75 / A745 Roundabout

	Name	Date
Drawn	JS	01/03/2021
Designed	CN	01/03/2021
Checked	TL	01/03/2021
Point of Interest		17

Scale: 1:1000 @ A3

File No: 103864 Rambol Artfield V150 SPA 01032021.dwg

Drawing Status: Draft

Drawing No.: SK13

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: XXX

Pell Frischmann
93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Rambol

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

Project: Artfield Wind Farm

Drawing Title: V150 Blade and Tower

SPA Location: A75 / A745 Roundabout

	Name	Date
Drawn	JS	01/03/2021
Designed	CN	01/03/2021
Checked	TL	01/03/2021
Point of Interest		17

Scale: 1:500 @ A3

File No: 103864 Rambol Artfield V150 SPA 01032021.dwg

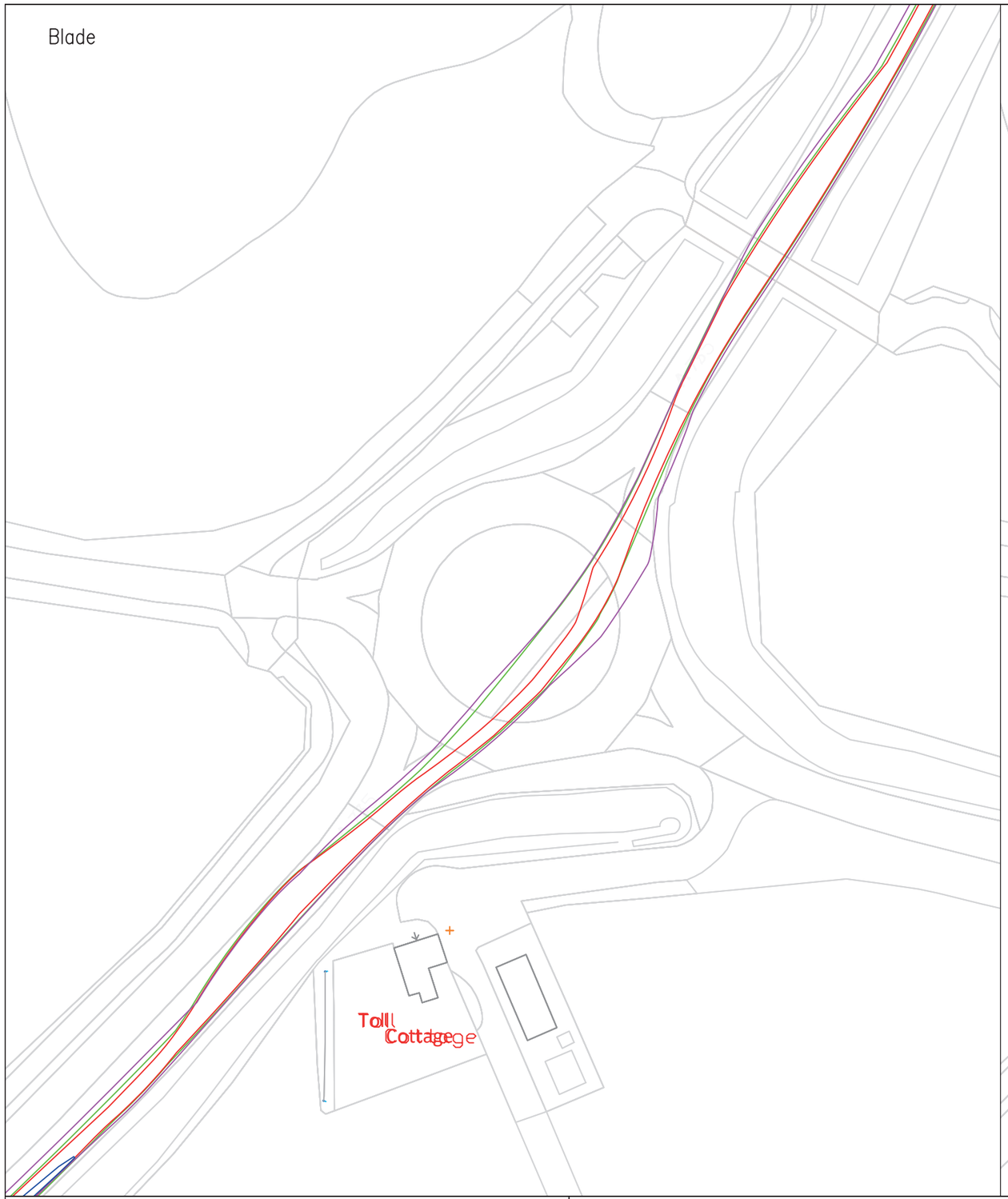
Drawing Status: Draft

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: XXX

Blade



Tower

Pell Frischmann
93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Rambol

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

Project: Artfield Wind Farm

Drawing Title: V150 Blade and Tower

SPA Location: A75 / B736 Roundabout

	Name	Date
Drawn	JS	01/03/2021
Designed	CN	01/03/2021
Checked	TL	01/03/2021
Point of Interest		18

Scale: 1:1000 @ A3

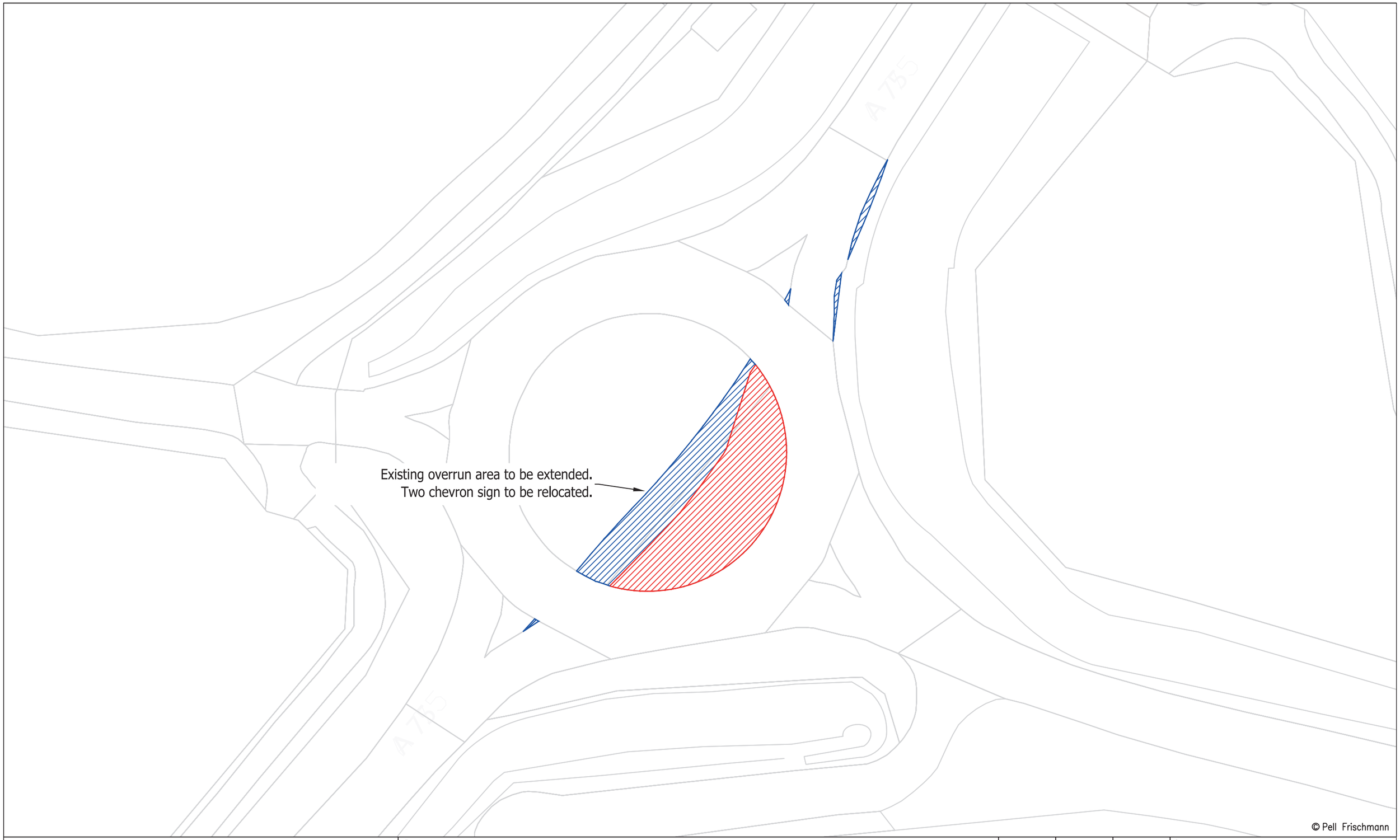
File No: 103864 Rambol Artfield V150 SPA 01032021.dwg

Drawing Status: Draft

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: XXX



Pell Frischmann
93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Rambol

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

Project: Artfield Wind Farm

Drawing Title: V150 Blade and Tower

SPA Location: A75 / B736 Roundabout

	Name	Date
Drawn	JS	01/03/2021
Designed	CN	01/03/2021
Checked	TL	01/03/2021
Point of Interest		18

Scale: 1:500 @ A3

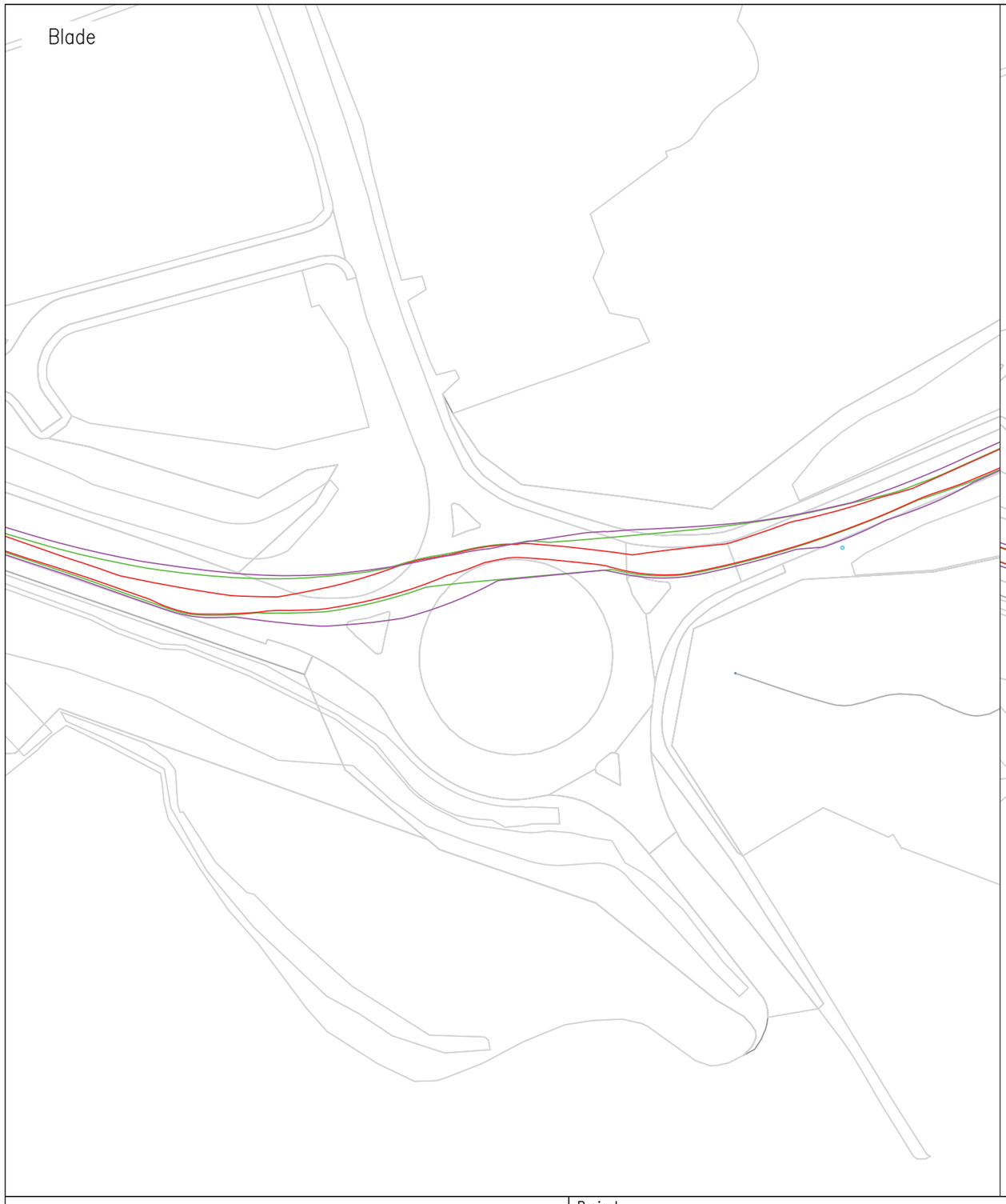
File No: 103864 Rambol Artfield V150 SPA 01032021.dwg

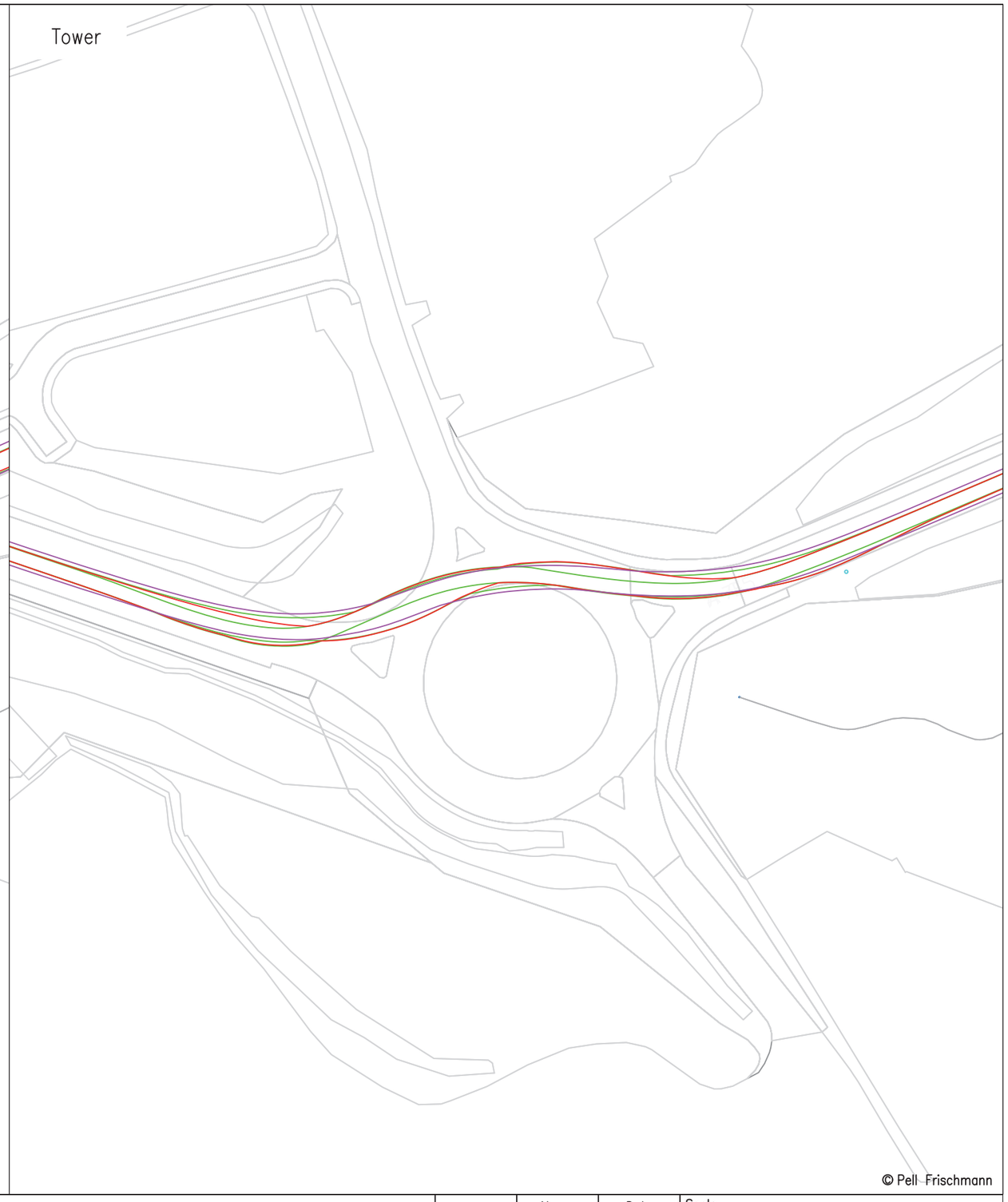
Drawing Status: Draft

Drawing No.: SK14A

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: XXX





Pell Frischmann
93 GEORGE STREET, EDINBURGH, EH2 3ES
Tel: +44 (0)131 240 1270
Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Rambol

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over–run | Over–sail

Project: Artfield Wind Farm

Drawing Title: V150 Blade and Tower

SPA Location: A75 / A714 Roundabout

	Name	Date
Drawn	JS	01/03/2021
Designed	CN	01/03/2021
Checked	TL	01/03/2021
Point of Interest		19

Scale: 1:1000 @ A3

File No: 103864 Rambol Artfield V150 SPA 01032021.dwg

Drawing Status: Draft

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: XXX