



Trecelyn Wind Farm

Draft Environmental Statement

Appendix 12A: Abnormal Indivisible Load Access Study





Report for

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Contents

1.	Introduction	4
1.1	Context	4
1.2	PURPOSE OF REPORT	4
1.3	STUDY APPROACH	5
1.4	REPORT STRUCTURE	5
2.	Site Context And All Vehicle Specifications	7
2.1	SITE CONTEXT	7
2.2	AIL TRANSFER VEHICLES SPECIFICATIONS	7
1	LEGISLATIVE AND PROCEDURAL GUIDELINES	8
2.3	INTRODUCTION	8
2.4	SPECIAL TYPES GENERAL ORDER (STGO) – ABNORMAL INDIVISIBLE LOAD REGULATIONS	8
2.5	WELSH GOVERNMENT PROCEDURE AND ADVICE GUIDANCE (PAG)	10
2.6	Special Orders	11
2.7	Electronic service delivery for abnormal loads (ESDAL)	12
3.	ROUTE OPTIONS	13
3.1	INTRODUCTION	13
3.2	ASSESSMENT APPROACH	13
3.3	PORTS OF ENTRY	13
3.4	ROUTE IDENTIFICATION	14
3.5	ROUTE OPTIONS	14
3.6	LOCAL ROAD NETWORK	15
3.7	OLD PANT ROAD	15
3.8	CENTRAL AVENUE	16
3.9	A467	16
3.10	A472	16
3.11	A4	16
3.12	STRATEGIC ROAD NETWORK	16
4.	ROUTE OPTIONS APPRAISAL	18
4.2	ROUTE OPTION 1	18
4.3	ROUTE OPTION 2	20
4.4	PREFERRED Route	21
5.	CONSULTATION	22

6.	MANAGEMENT STRATEGY	23
6.2	ROUTE ENFORCEMENT	23
6.3	TIMING OF MOVEMENTS	23
6.4	ESCORTS	24
6.5	TEMPORARY CLOSURES AND TRAFFIC REGULATION ORDER	24
6.6	NOTIFICATION	24
6.7	LIGHTING, SIGNING AND MARKING	24
6.8	PUBLIC COMMUNICATION STRATEGY	24
7.	Summary	25

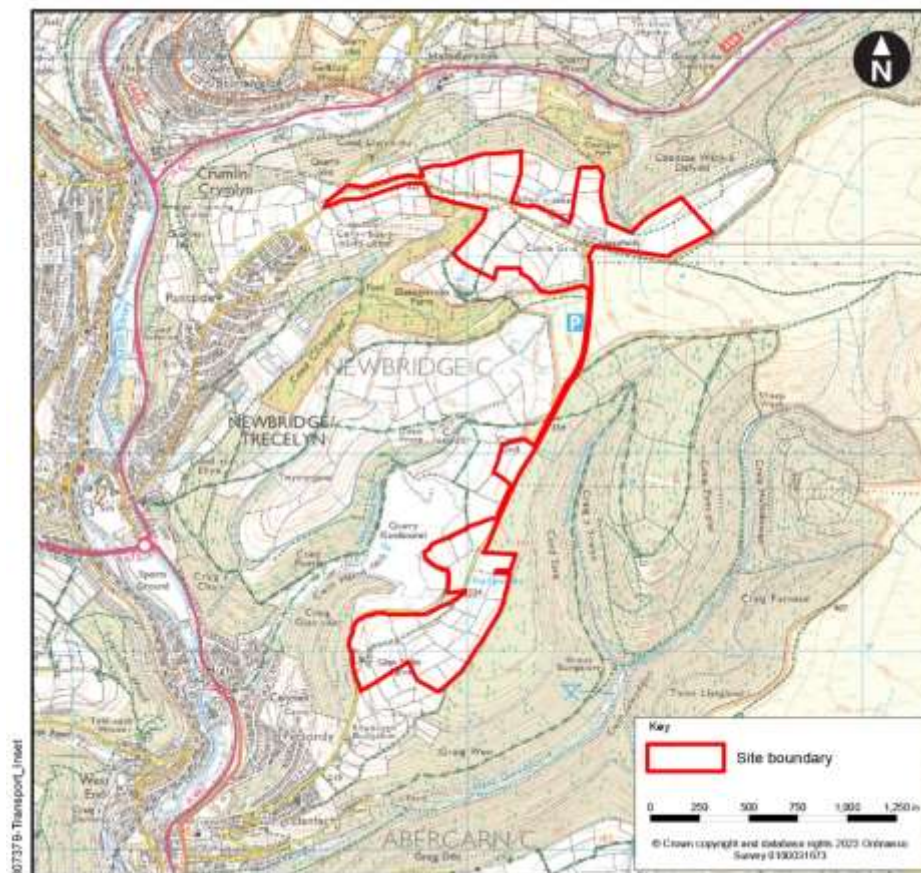
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1. Introduction

1.1 Context

- 1.1.1 WSP has been commissioned by Pennant Walters Limited ('the Applicant') to undertake an Abnormal Indivisible Load (AIL) access study for the delivery of AILs associated with Trecelyn Wind Farm, also referred to as 'the Proposed Development'. The Proposed Development comprises of up to four wind turbines and all infrastructure required to transmit the power generated by the turbines to the national grid network.
- 1.1.2 The Proposed Development site (the Site) is located in near Crumlin, Wales. The location of the Site is shown in Figure 1-1 below.

Figure 1-1 - Site Location



1.2 PURPOSE OF REPORT

- 1.2.1 The purpose of this AIL access study is to provide the Applicant with information concerning the practicalities of delivering AILs between an appropriate port capable of accommodating the delivery of Wind Turbine components and the Proposed Development site's access point.

1.2.2 Though different AIL components (nacelle, hub, tower) will need to be delivered to the Site, as a worst-case scenario the transportation of a Superwing Carrier trailer with a 57.390m blade (V117 Vestas model) requires the largest vehicle size. A route survey report which includes a swept path analysis (SPA) of the pinch points along the route identified as the preferred route option has been included within this report in **Annex B**.

1.2.3 In summary, this report provides information on the following items:

- Transfer vehicle and AIL specifications;
- Transfer routes considered within this assessment; and
- Next steps.

1.3 STUDY APPROACH

1.3.1 This Study has been informed by a Route Survey Report undertaken by Pell Frischman - which identified a route from Avonmouth Docks - and a desktop review of a potential route from Swansea Port to the Proposed Development.

1.3.2 The desktop review considered both horizontal and vertical clearance for the Abnormal Load vehicle along a proposed route from Swansea Port. Aspects such as bridge headroom, road width, load and weight restrictions which have been considered as constraints for abnormal load deliveries have been marked as pinch points.

1.3.3 The route proposed by Pell Frischmann in the Route Survey Report has been reviewed and the pinch points identified by Pell Frischmann have been summarised, and any mitigation measures required to accommodate the AIL deliveries have been identified.

1.4 REPORT STRUCTURE

1.4.1 This AIL study is structured as follows:

- Chapter 2 Site Context and AIL Transfer Vehicles Specifications: provides the site location and context. It also identifies the proposed transport vehicle for the blade;
- Chapter 3 Legislative and Procedural Guidelines: provides an overview of the relevant guidance and procedural documentation used to determine the category of AIL vehicle and respective requirements concerning notification procedures, speed limits and escorts;
- Chapter 4 Route Options: provides an outline of the port of entry and identified routes along the strategic, regional and local road network to the Proposed Development;
- Chapter 5 Route Options Appraisal: provides an assessment of the route options, identifying pinch points, constraints and potential mitigation requirements;
- Chapter 6 Public Consultation;
- Chapter 7 Management Strategy: details the general arrangement measures that will be adhered to during the transfer of AILs; and
- Chapter 8 Summary: provides a summary of the route options identified.

1.4.2 All information presented within this assessment, including the AIL and vehicle specifications, is based on the best available information at this time and may be subject to change following the appointment of a haulage contractor. This assessment does however represent a 'worst case' scenario, meaning any change to the AIL/vehicle specification should not cause any issues at later stage.

- 1.4.3 Any intended changes will be forwarded to the relevant highway authorities for consideration.

2. Site Context And All Vehicle Specifications

2.1 SITE CONTEXT

2.1.1 The Site is located on elevated ground between Crumlin, Newbridge and Hafodyrynys. The A472 routes east/west a short distance north of the site and the A467 routes north/south approximately 1.5-2km west of the Site. The Site lies within the Caerphilly County Borough Council (CCBC) administrative area.

2.1.2 Site access arrangements are to be determined but it is expected that an unclassified road which routes north/south through the Site will provide access to four individual site locations: Access 1 to the substation, Access 2 to Wind Turbine Generator (WTG) 1, Access 3 to WTG 2 and Access 4 to WTGs 3 and 4. The A472 and A476 provide connections to the strategic road network at the A465 Heads of Valleys Road and at the M4. **Figure 1-1** within **Section 1 Introduction** illustrates the site location.

2.2 AIL TRANSFER VEHICLES SPECIFICATIONS

2.2.1 The type of transfer vehicle being considered in the AIL assessment is a Superwing Carrier Trailer for the transport of a 57.390m blade. The vehicle configuration used to transfer the blade will ultimately be decided by the appointed haulier, however, the configurations selected are considered to be a robust representation for this assessment.

2.2.2 Confirmation/ guidance would be sought from the appointed haulier during a trial run. **Figure 2-1** Illustrates the typical arrangement of an abnormal load vehicle with a Wind Turbine Blade load.

Figure 2-1 - Typical Blade Transporter Vehicle Arrangement



Source: Autodesk Vehicle Tracking, 2019

1 LEGISLATIVE AND PROCEDURAL GUIDELINES

2.3 INTRODUCTION

2.3.1 An abnormal indivisible load is a type of load that cannot be divided into two or more loads for transportation by road. The vehicle and its load are classed as an abnormal load when it has:

- a weight of more than 44,000kg;
- an axle load of more than 10,000kg for a single non-driving axle and 11,500kg for a single driving axle;
- a width of more than 2.9 metres; and
- a rigid length of more than 18.65 metres.

2.3.2 The Road Vehicles (Construction & Use) Regulations 1986 (C&U)¹ describes the different types and classification of permitted vehicles for use on the road, for example motor cars, motorbikes, buses, lorries, mobile cranes and tracked vehicles. It also states the maximum dimensions for each type of vehicle, its gross weight, number of axles, braking system, type of tyres, maximum speed, exhaust system and mirrors.

2.3.3 The Road Vehicles (Authorised Weight) Regulations 1998² (AW) details the imposed maximum weight (gross and per axle) of different types of vehicles relating to the number of axles within each category of vehicle.

2.3.4 Vehicles which are not conforming to the Regulations specified above are subject to those outlined within Road Vehicles (Authorisation of Special Types) (General) Order 2003 (STGO). It specifies when the Police, Roads Authority or Secretary of State is to be notified of an intended vehicle movement and the number of days' notice required before the movement takes place.

2.4 SPECIAL TYPES GENERAL ORDER (STGO) – ABNORMAL INDIVISIBLE LOAD REGULATIONS

2.4.1 An ALL transport vehicle which does not comply with the Road Vehicles (Authorisation of Special Types) (General) Order 2003 (STGO)³ would require a special order issued by:

- South Wales Trunk Road Agent or National Highways on abnormal loads not covered by C&U and STGO; or
- the Vehicle Certification Agency (VCA) on special vehicles and divisible loads outside the scope of C&U and STGO.

¹ The Secretary of State for Transport. (1986). The Road Vehicles (Construction & Use) Regulations. (online). Available at: <https://www.legislation.gov.uk/uksi/1986/1078/contents/made>. (Accessed November 2023)

² The Secretary of State for Transport. (1998). The Road Vehicles (Authorised Weight) Regulations 1998. (online). Available at <https://www.legislation.gov.uk/uksi/1998/3111/contents/made>. (Accessed November 2023).

³ The Secretary of State for Transport. (2003). The Road Vehicles (Authorisation of Special Types). (online) Available at: <https://www.legislation.gov.uk/uksi/2003/1998/contents/made>. (Accessed October 2023).

- 2.4.2 In addition to the above, hauliers are generally advised to inform statutory authorities if total vehicle heights are likely to exceed 5.0m (although it should be noted that there is no legal height restriction in the UK).

STGO vehicles are further categorised into three weight categories, as follows:

- Category 1 - Maximum Gross Weight: 50,000 kg, C&U Regulation axle limit (46,000 kg if the combination has less than 6 axles and does not comply in all other respects with the Authorised Weight Regulations);
- Category 2 - Maximum Gross Weight: 80,000 kg, 12,500 kg axle limit; and
- Category 3 - Maximum Gross Weight: 150,000 kg, 16,000 kg axle limit.

- 2.4.3 For all categories, the following advice is provided with regards to width:

- A vehicle, locomotive or trailer may be up to 3.0m wide and subject to certain qualifications. This limit may be exceeded if it is necessary for the safe carriage of the load;
- Loads wider than 5m can only be conveyed if authorised by special order (the VR1 procedure under STGO). The VR1 must be carried on the vehicle and at least 10 days notification is required prior to the movement date; and
- The load cannot exceed 6.1m width under STGO Regulations.

- 2.4.4 For all categories, the following advice is provided with regards to length:

- The overall length of the vehicle(s) and load may be up to 30m, or greater if authorised by special order from the Secretary of State (SOS). In any combination of vehicles on which a load rests, including any articulated vehicle, the 30m does not include the length of the drawing vehicle; and
- An articulated vehicle or trailer, which is abnormal only in respect of length for carrying indivisible loads of exceptional length, can operate under normal C&U Regulations.

- 2.4.5 With regards to speeds, those that apply to each of the weight categories are set out in **Table 3-1**.

Table 1-1 – Speed Restrictions

	<i>Motorways</i>	<i>Dual Carriageway</i>	<i>Other</i>
Category 1	60mph	50mph	40mph
Category 2	40mph	35mph	35mph
Category 3	40mph	35mph	35mph

- 2.4.6 It should be noted that although the speeds referenced above are the legal limits, the actual achievable speed of the vehicle configuration may be lower.

2.5 WELSH GOVERNMENT PROCEDURE AND ADVICE GUIDANCE (PAG)

- 2.5.1 The Welsh Government Procedure and Advice Guidance (PAG) ⁴ – ‘Pulling Together’ Best Practice for Transporting Abnormal Loads in Wales, defines the statutory process for planning and organising safe and effective abnormal load movements in agreement with all relevant authorities and organisations. **Table 3-2** and **Table 3-3** provide the abnormal load legal categorisation and the actions required depending on the vehicle and load width, length and weight.
- 2.5.2 The highlighted row and column in the following tables represents the category of the proposed AIL delivery.

Table 1-2 - Abnormal load category by size/weight combination (Welsh Government, 2021)

Gross weight	Axle weight	Load Dimensions				
		W ≤2.9m L ≤18.65m	W >2.9m L >18.65m	W >4.3m L >27.4m	W >5m L >27.4m	W >6.1m L >30m
≤44,000kg	≤11,500kg	C&U	C&U	STGO Category 1	STGO Category 1	Special Order
>44,000kg	≤11,500kg	STGO Category 1	STGO Category 1	STGO Category 1	STGO Category 1	Special Order
>50,000kg	>11,500	STGO Category 2	STGO Category 2	STGO Category 2	STGO Category 2	Special Order
>80,000kg	>12,500	STGO Category 3	STGO Category 3	STGO Category 3	STGO Category 3	Special Order
>150,000kg	>16,500kg	Special Order	Special Order	Special Order	Special Order	Special Order

Key: = Abnormal load legislation

⁴ Welsh Government (2020). Pulling together Best Practice for Transporting Abnormal Loads in Wales. (online) Available at: <https://www.gov.wales/sites/default/files/publications/2021-12/best-practice-for-transporting-abnormal-loads-in-wales-rhoscrowther-wind-farm.pdf>. (Accessed October 2023)

Table 1-3 – Pre-journey notification requirements by abnormal load category (Welsh Government, 2021)

Gross weight	Axle weight	Load Dimensions				
		W ≤2.9m L ≤18.65m	W >2.9m L >18.65m	W >4.3m L >27.4m	W >5m L >27.4m	W >6.1m L >30m
≤44,000kg	≤11,500kg	N/A	Police – 2d			
>44,000kg	≤11,500kg	HA&BO – 2d	Police – 2d		Police – 2d HA&BO – 2d NH – 2w	
>50,000kg	>11,500		HA&BO – 2d			
>80,000kg	>12,500		Police – 2d HA&BO – 5d		Police – 2d HA&BO – 5d NH – 2w	
>150,000kg	>16,500kg					Police – 5d HA&BO – 5d NH – 10w








Key:  = Abnormal Load legislation  = VR1 form notice  = C&U
 = STGO C1  = STGO C2  = STGO C3  = Special Order
 HA&BO = Highway Authority and other Bridge Owners NH = National Highways

Table 3-2 and **Table 3-3** shows that the proposed AIL delivery will require Special Order and will need to comply with pre-journey notification requirements.

2.6 Special Orders

2.6.1 To apply for a VSO, the following information will need to be supplied to the Department for Transport (DfT):

- Name and address of person/organisation making the application;
- Details of persons/organisations who will be using the vehicles, if different from the previous;
- The number of vehicles involved;
- Type of vehicles involved, their make, model, registration, and/or chassis (serial) numbers of motor vehicles or trailers. These will be listed on any order issued;
- Details of the vehicles e.g. number of axles, individual axle weights, and gross vehicle weights (both in kg), plus dimensions (in m);
- In the case of vehicle combinations, overall weights (in kg) and dimensions (in m); and
- Details of the C&U Regulations with which the vehicles do not comply and the reasons why they cannot comply: The Regulations are specified on the VSO, and it should be made clear that failure to comply with non-specified Regulations or supplying incorrect data would invalidate the VSO.

2.6.2 On receipt of the application, the Vehicle Certification Agency (VCA) will evaluate the application and contact the applicant should further information be required. Various organisations including the Police, Local Authorities and other interested parties, both within and outside of the DfT may be consulted; especially in respect of the conditions to be imposed. Following receipt of all information, and assuming that there are no technical

reasons or objections from any of the parties consulted, the VSO will be prepared and dispatched by email within 10 working days.

- 2.6.3 VSOs are issued for varying periods of time at the discretion of the DfT. Typically, they are issued for a period of up to five years.

The following sets out the speed limits of VSO loads:

- Articulated vehicles weighing between 150 and 250 tonnes: 25mph;
- Draw-bar Trailer vehicles weighing between 150 and 250 tonnes: 20mph; and
- Girder frame trailers: 12mph.

2.7 Electronic service delivery for abnormal loads (ESDAL)

- 2.7.1 Within England, the proposed abnormal load route from Avonmouth Docks can be plotted within the Electronic Service Delivery for Abnormal Loads (ESDAL) system administered by National Highways. The ESDAL system allows hauliers to use one system for the following:

- plan the route and check its suitability for the load;
- get full details of all the organisations and authorities that will need to be notified before delivery;
- notify the police, highways and bridge authorities of planned abnormal indivisible load (AIL) movements around the road network;
- submit notifications (to relevant parties); and
- get advance notice of any possible route problems.

3. ROUTE OPTIONS

3.1 INTRODUCTION

- 3.1.1 This section describes the approach undertaken to identify potential routes to transport wind turbine blades from Avonmouth Docks and Swansea Docks to the Proposed Development. Routes have been assessed against the type of road, horizontal alignment, settlement patterns and available height and weight restrictions in order to identify pinch points.
- 3.1.2 A 'pinch point' is defined as a location where constraints relating to each of the design characteristics referenced below are likely to prevent or significantly impede abnormal load access:
- Horizontal road alignment;
 - Vertical road alignment; and
 - Weight/height restrictions.

3.2 ASSESSMENT APPROACH

- 3.2.1 Potential AIL delivery routes to the Proposed Development were identified via desktop analysis of the highway network between Swansea Docks and the Proposed Development.
- 3.2.2 A desktop assessment has been undertaken using Ordnance Survey (OS) maps, Google Earth Pro, Google Street View and Google Maps and has considered road type, horizontal and vertical alignment, settlement patterns and available height and weight restrictions.
- 3.2.3 A route option from the Swansea Docks has been selected based on the consideration of the above, in addition to the likelihood of upgrade works and third-party land being required.
- 3.2.4 Assessment of a route option from Avonmouth docks has been undertaken by Pell Frischmann, and a copy of Pell Frischmann's Route Survey Report is attached in **Annex B**.
- 3.2.5 This AIL study considers the two potential routes identified and sets out the preferred route option within **Section 5.3**.

3.3 PORTS OF ENTRY

- 3.3.1 Best practice guidelines set by South Wales Trunk Road Agent and National Highways state that, where possible, the nearest port to the proposed development should be used when investigating the transportation AILs.
- 3.3.2 The Port of Avonmouth is connected to the Strategic Road Network at the M49, and abnormal load vehicles could then use the route via the M49, M4, A472, A467, Central Avenue, Old Pant road and an Unclassified road to reach the Site. The proposed route is approximately 53km in length.
- 3.3.3 The Port of Swansea is connected to the Strategic Road Network at the M4. Abnormal load vehicles would then use the route via the M4, A467, Central Avenue, Old Pant Road

and an Unclassified Road to reach the Site. The proposed route is approximately 95km in length.

3.3.4 The proposed route from Port of Swansea is therefore a longer route by 42km in length.

3.4 ROUTE IDENTIFICATION

3.4.1 Potential routes from the Port of Swansea and the SRN have been identified using Ordnance Survey (OS) maps, Google Earth Pro, Google Street View and Google Maps.

3.4.2 The route from Avonmouth Docks has been identified by Pell Frischmann and is set out within the Route Survey Report attached as **Annex B**.

3.5 ROUTE OPTIONS

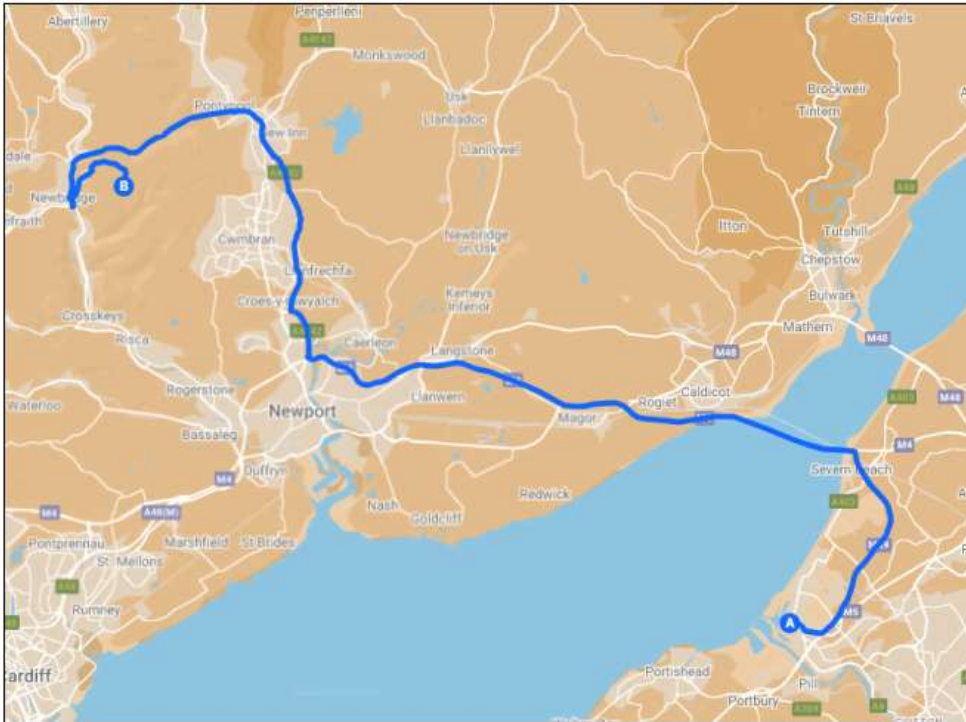
Figure 3-1 and **Figure 3-2** illustrate the two route options for the Proposed Development that have been considered as part of this assessment. These are as follows:

- Route Option 1 – Routing from the Port of Swansea, accessing the Proposed Development via the M4, Forge Road, A467, Central Avenue, Old Pant Road and an Unclassified Road; and
- Route Option 2 – Routing from Avonmouth, accessing the Proposed Development via the M49, M4, A472, A467, Central Avenue, Old Pant Road and an Unclassified Road.

Figure 3-1 – AIL Delivery Route Option 1



Figure 3-2 - AIL Delivery Route Option 2



Source: Abnormal Indivisible Load Route Survey Report, 2023 – Annex B

3.6 LOCAL ROAD NETWORK

3.6.1 Unclassified road

3.6.2 The Unclassified Road included within the scope of this assessment includes a section of highway between Old Pant Road and a potential access to WTGs 3 and 4. The road is subject to the National Speed limit and is rural in nature. The carriageway width is typically 3m wide and site constraints, including hedgerow and dry-stone walling, are located in proximity to the edge of the carriageway at various sections of the road. A cattle grid is located adjacent to an agricultural property.

3.7 OLD PANT ROAD

3.7.1 Old Pant is a single carriageway road which is approximately 6m in width. The road routes between the Site access and Central Avenue in a northeast/southwest alignment. Between the Site access and residential properties at Panside, the road is subject to the National Speed Limit. Where Old Pant Road passes through residential sections of road through Panside to Central Avenue, the road is subject to a 30-mph speed limit.

3.7.2 Throughout the residential section of Old Pant Road, streetlighting is provided and footways are located on both sides of the carriageway. Residential properties and driveways front onto the road and bus stops are located intermittently along the road. A short section of Old Pant Road routes along the eastern boundary of Panside Primary School; this section is subject to a 20-mph speed limit and traffic calming measures are provided within the carriageway including speed humps and a buildout with priority control of traffic.

3.8 CENTRAL AVENUE

- 3.8.1 Central Avenue is a single carriageway road approximately 6m wide, subject to a 30mph speed limit and approximately 620m long in a south to north alignment from A467/Central Avenue junction to Central Avenue/ Old Pant Road roundabout. There is streetlighting and footways on both sides of the road. For the majority of its route, Central Avenue is fronted by residential properties on either side of the road accessed through dropped kerb driveways and private accesses. There are buildouts at sections along the road and on-street parking provisions. There are two southbound bus stops are provided approximately 70 meters and 265m from A467 Pant Road/ Central Avenue junction.

3.9 A467

- 3.9.1 Within the scope of assessment, the A467 routes in a north/south alignment between Junction 28 of the M4 and the A467/A472 junction at Crumlin. The road is a dual carriageway between Junction 28 of the M4 and the A467/B4251 junction at Crosskeys and is a single carriageway for the remaining route through Abercarn, Newbridge and Crumlin to the A472 junction. The road is subject to various speed limits along its route but is predominantly subject to the National speed limit along the dual carriageway section. The speed limit on the single carriageway section is reduced to 30mph as the A467 enters Crumlin.

3.10 A472

- 3.10.1 Within the scope of assessment, the A472 routes from the A472/A4042 roundabout in Pontypool to the A472/A467 signalised junction in Crumlin. From the A472/A4042 roundabout, the road is subject to a 50mph speed limit along a section of dual carriageway approximately 1.5km in length. West of the A472/A472/A4043 roundabout the A472 is a single carriageway road for which the speed limit varies between 30mph, 40mph and the national speed limit.
- 3.10.2 Street lighting is provided along the full length of the A472 with footways provided intermittently, connecting the Site to the nearby settlements. As the A472 enters Hafodyrynys the road is subject to a 30mph speed limit and residential properties and footways exist on both sides of the carriageway.

3.11 A4

- 3.11.1 Within the Avonmouth area, the A4 routes south from Avonmouth Port Exit, at King Road Avenue/Saint Andrews Road/ McLaren Road/ Crowley Way roundabout towards Bristol city centre. Within the Avonmouth Dock area, the A4 is a dual carriageway which is subject to a 40mph speed limit and streetlighting is provided. The road is fronted by numerous industrial and commercial properties and pedestrian footways are provided on both sides of the carriageway. A signal-controlled pedestrian crossing is present on the A4 Crowley Way.

3.12 STRATEGIC ROAD NETWORK

- 3.12.1 The Strategic Road Network (SRN) comprises the routes of national strategic importance (motorways and trunk roads), which are operated and maintained by South Wales Trunk Road Agency in the vicinity of the Site (within Wales) and by National Highways (within England) on the potential route from Avonmouth Dock.

- 3.12.2 The A4042 and M4 are the strategic roads in the vicinity of the Site, and within Wales are maintained by the South Wales Trunk Road Agency. Within England, the M4 and M49 are strategic roads on the potential route from Avonmouth Dock and are maintained by National Highways
- 3.12.3 The M4 is a long-distance route between Swansea and London and the M49 is a strategic link between Avonmouth Dock and the M4 at Piling Interchange. The A4042 provides a north-south connection between Newport and the A465 Heads of Valleys Road.

4. ROUTE OPTIONS APPRAISAL

- 4.1.1 The following section provides further detail on the route options identified within **Section 4.5**. This includes identification of the location, obstacles and potential mitigation measures required for the AIL transfer vehicle to safely manoeuvre between the port of origin to the primary access to the proposed development for AILs. Supporting photographic evidence is included within **Annex A**.
- 4.1.2 For the purpose of this assessment, it has been assumed that the AIL would straddle both running lanes on dual carriageway sections.
- 4.1.3 Due to the size and nature of the M4, it is assumed that there are no constraints to impede AILs on the section of the haulage route between Swansea Port and the M4. Therefore, the route assessment commences from M4 Junction 28 where the AIL vehicle leaves the Strategic Road Network.
- 4.1.4 Route option 2 has been identified and developed by Pell Frischmann. The route is summarised within section **5.2**, but further details are presented with the Route Survey Report within **Annex B**.

4.2 ROUTE OPTION 1

- 4.2.1 Route option 1 has been determined by a desktop review on the basis of the port of entry being Port of Swansea. The proposed route option 1 is as follows:
- Swansea Docks to Baldwins Crescent
 - Baldwins Crescent to the A483
 - A483 to A483/Ffordd Amazon/ Ashleigh Terrace Roundabout
 - A483 to M4 junction 42
 - M4 Junction 42 to junction 28 onto the A467
 - A467 to Central Avenue
 - Central Avenue to Old Pant Road
 - Unclassified Road
 - Site Access
- 4.2.2 **Table 5-1** presents the pinch points identified on route option 1, including the location and the nature of the anticipated constraint. Images of the pinch point locations are provided within **Annex A**.

Table 4-1 – Route Option 1 Appraisal

<i>Pinch Point No.</i>	<i>Direction of Travel</i>	<i>Location</i>	<i>Photo Set (Ref No)</i>	<i>Responsible Authority</i>	<i>Issue</i>	<i>Comment</i>
1	Left turn	M4 Junction 28	Photograph 1	Newport	Central island, splitter island and street furniture	SPA recommended

<i>Pinch Point No.</i>	<i>Direction of Travel</i>	<i>Location</i>	<i>Photo Set (Ref No)</i>	<i>Responsible Authority</i>	<i>Issue</i>	<i>Comment</i>
2	Right turn	A467 Forge Road/Forge Road/ A467/Park View Roundabout	Photograph 2	Newport	Central island, splitter island and street furniture	SPA recommended
3	Straight ahead	A467/ Meadowland Drive Roundabout	Photograph 3	Newport	Central island, splitter island and street furniture	SPA recommended
4	Straight ahead	A467/ B4591 Roundabout	Photograph 4	Caerphilly	Central island, splitter island and street furniture	SPA recommended
5	Right turn	B4251 Islywyn Road/A467 Roundabout	Photograph 5	Caerphilly	Central island, splitter island and street furniture	SPA recommended
6	Straight ahead	A467/ Twyncarn Road/ Chapel Farm Industrial Estate Roundabout	Photograph 6	Caerphilly	Central island, splitter island and street furniture	SPA recommended
7	Straight ahead	A467 Abercan	Photograph 7	Caerphilly	Road alignment and private properties	SPA recommended
8	Straight ahead	A467/ B4591/Coed Celyn Drive Roundabout	Photograph 8	Caerphilly	Central island, splitter island and street furniture	SPA recommended
9	Right turn	A467 Pant Road /A472/ Bridge Street Roundabout	Photograph 9	Caerphilly	Central island, splitter island and street furniture	SPA recommended
10	Right turn	A467 Pant Road/	Photograph 10	Caerphilly	Splitter island and	SPA recommended

<i>Pinch Point No.</i>	<i>Direction of Travel</i>	<i>Location</i>	<i>Photo Set (Ref No)</i>	<i>Responsible Authority</i>	<i>Issue</i>	<i>Comment</i>
		Central Avenue			street furniture	
11	Straight ahead	Central Avenue/ Old Pant Road Roundabout	Photograph 11	Caerphilly	Central island, splitter island and street furniture constraint	SPA recommended
12	Straight ahead	Old Pant Road	Photograph 12	Caerphilly	Road alignment and private properties	SPA recommended
13	Right turn	Old Pant Road/ Unnamed Road	Photograph 13	Caerphilly	Constrained road junction	SPA recommended
14	Straight Ahead	Unclassified Road	Photograph 14	Caerphilly	Constrained road bends	SPA recommended
15	Right turn	Unclassified Road	Photograph 15	Caerphilly	Constrained road bend	SPA recommended

4.3 ROUTE OPTION 2

4.3.1 Route option 2 proposes a route to site from Port of Avonmouth and is set out in detail within the supporting Route Survey Report prepared by Pell Frischmann, included within **Annex B**. The route briefly comprises the following roads;

- A4 to M49
- M49 to M4 at the Piling Interchange
- M4 Piling interchange to M4 junction 24 onto the A4042
- A4042 to A472 in Pontypool
- A472 to the A467 at Crumlin
- A467 to Central Avenue
- Central Avenue to Old Pant Road
- Unclassified Road
- Site

4.3.2 **Section 3.3** of the Route Survey Report (**Annex B**) presents the pinch points identified along the route. Appendix A of the Route Survey Report presents the swept path assessment of the pinch points identified and provides suggested mitigation.

4.3.3 The swept path assessment within the Route Survey Report identifies that there are third party land requirements along the proposed route and some pinch points may require more significant mitigation for the route to be achievable. For this route to be considered feasible consideration should be made to whether the mitigation requirements at some pinch points are considered to be acceptable to all stakeholders including local highways authorities. Appropriate land agreements will need to be made where third party land requirements have been identified.

4.4 PREFERRED Route

- 4.4.1 On the basis of the providing the shortest route possible between the Site and the port of entry in order to minimise the impact of AIL deliveries on the operation of the road network, route Option 2 from Avonmouth Dock has been selected as the preferred route option.

5. CONSULTATION

- 5.1.1 Consultation will be undertaken with statutory consultees including Local Highways Authorities, The Welsh Transport Directorate, South Wales Trunk Road Agent and South Wales Police during November 2023. Comments provided will be considered and where necessary the AIL study will be updated to reflect the views of statutory consultees.
- 5.1.2 Beyond the consultation period further consultation with highways authorities which are affected by the proposed Abnormal Load route is expected. This consultation would be planned to take place before a trial run is arranged.
- 5.1.3 The trial run will confirm any identified temporary structural improvements identified within the Swept Path Assessment of the preferred route option.
- 5.1.4 A Section 278 Agreement of the Highways Act 1980 will be secured between the relevant local highways authorities and the developer to cover the associated highway works needed to facilitate the delivery of the abnormal loads. The appropriate officer at the relevant highway's authority will be contacted in due course.

6. MANAGEMENT STRATEGY

- 6.1.1 It is essential that the movements are thoughtfully planned and undertaken to ensure they progress safely on the highway.
- 6.1.2 Those responsible for transporting abnormal loads by road are required by law to plan and execute each movement in agreement with relevant authorities to ensure the incident-free passage of every load from origin to destination.
- 6.1.3 The Welsh Government Procedure and Advice Guidance (PAG) document which aims to summarise the legal process which must be followed in the planning and execution of all abnormal load movements of trunk roads within Wales and to clarify the roles and responsibilities of the various parties involved.
- 6.1.4 There is no legal height limit for vehicles but, wherever possible, the overall height of a vehicle and a load should not exceed 4.95m so that the maximum use can be made of the motorway and trunk road network. This will ensure that loads are less than 5.03m in height, which is the minimum maintained headroom requirement on highways in the UK. In addition to the mitigation measures on the routes, the following will be undertaken prior to transporting the abnormal load:
- Notify South Wales Trunk Road Agent;
 - Advance warning to the police (Gwent Police, South Wales Police, Dyfed Powys Police); and
 - Advance warning to relevant structures teams within Local Authorities and any other Stakeholders impacted.
- 6.1.5 An Construction Traffic Management Plan (CTMP) has been prepared separately covering the construction of the proposed development, **Appendix 12B**. This CTMP is a working document which sets out the principles by which traffic travelling to the Site should be managed, but it will require final confirmation of its suitability following the appointment of the Principal Contractor and relevant suppliers. The CTMP will be reviewed and updated as when necessary to incorporate any comments and additional mitigation measures which may be required to address comments received from key stakeholders in the future.
- 6.1.6 The following sets out the general traffic management strategy that would be employed by the contractor.

6.2 ROUTE ENFORCEMENT

- 6.2.1 The routes identified in this document will be strictly enforced unless further notification is given. All main and sub-contracting companies involved in the project will be monitored to ensure they follow the correct routes and do not use other 'shortcuts'. The routes will be clearly defined in all sub-contractors and clearly signposted for all drivers to see. Any contractor not adhering to the relevant route guidance will be disciplined. Onsite monitoring and spot checks will assist this.

6.3 TIMING OF MOVEMENTS

- 6.3.1 Deliverables shall only take place during the hours agreed with the Police and the relevant Highways Authority. Deliveries would be timed to avoid the morning or afternoon school run periods or other predictable peak traffic periods. Deliveries are expected to take place

during weekdays, however, if deliveries are required at weekends approval in principle should be sought from the relevant Roads Authority and the Police.

6.4 ESCORTS

- 6.4.1 Where applicable, abnormal loads shall all be escorted in accordance with the relevant highway authorities. The escorting will be undertaken by the haulage contractor. Where it has been identified that traffic will need to be temporarily stopped, then a Police escort will be required. Convoys would typically comprise no more than two abnormal vehicles and shall be escorted by Police and/or haulier escort vehicles, as appropriate.

6.5 TEMPORARY CLOSURES AND TRAFFIC REGULATION ORDER

- 6.5.1 At the discretion of the haulage contractor, temporary road closures may be required in order to deliver some of the larger abnormal loads. The haulage contractor will liaise with the local community, businesses and key services to ensure they are fully informed in advance should a road closure scheme be required.
- 6.5.2 Any required Temporary Traffic Regulation Orders (TTRO) will be obtained prior to the transport of the abnormal loads.

6.6 NOTIFICATION

- 6.6.1 All key stakeholders, which include the Local and Strategic Highways Authorities, would be notified prior to the movement of any abnormal loads. The appointed haulage contractor will be responsible for notifying the relevant stakeholders.
- 6.6.2 After the confirmation of haulier appointment and other related information, pre-notifications and consultations where possible will be undertaken.
- 6.6.3 Notifications will be made using the Electronic Service Delivery for Abnormal Loads (ESDAL).
- 6.6.4 VR1 and Special-order movements will take place when an explicit written approval is received as required by legislation.

6.7 LIGHTING, SIGNING AND MARKING

- 6.7.1 Lighting, signing, and marking will be in accordance with:
- Code of Practice Lighting and Marking for Special Order, VR1, STGO and C&U loads.
 - Using abnormally large or heavy vehicles on the road.

6.8 PUBLIC COMMUNICATION STRATEGY

- 6.8.1 The delivery of abnormal loads is likely to cause some delay to local road users and, in some cases, restrict access along certain routes. To ensure residents, local business and key services are made aware of such restrictions, the principal contractor will implement a comprehensive communications strategy, which could include, but is not limited to: letter drops, radio spots, notices within local papers, temporary road signage, website updates on a project website and other social media outlets.

7. Summary

- 7.1.1 This AIL study has selected a preferred route option to deliver 57m long blades and other associated Wind Turbine Generator components to the Trecelyn Wind Farm. The preferred route option will use Avonmouth as the port of delivery for Wind Turbine components. As identified by a supporting Route Survey Report prepared by Pell Frischmann the proposed route will require mitigation to accommodate the AIL vehicle at pinch points along the proposed delivery route. Some pinch points will require third party land to ensure the AIL delivery vehicle can be accommodated.
- 7.1.2 The results of the Swept Path Analysis included within the Route Survey Report (**Annex B**) will need to be confirmed by a trial run.

Annex A

PHOTOGRAPH 1 - M4 JUNCTION 28



Source: Google Street View, 2023

PHOTOGRAPH 2 - A4072 FORGE ROAD/ A468 FORGE ROAD/ A467/ PARK VIEW ROUNDABOUT



Source: Google Street View, 2023

PHOTOGRAPH 3 - A467/ MEADOWLAND DRIVE ROUNDABOUT



Source: Google Street View, 2023

PHOTOGRAPH 4 - A467/ A467/ B4591/ LOWER OCHRWYTH ROUNDBABOUT



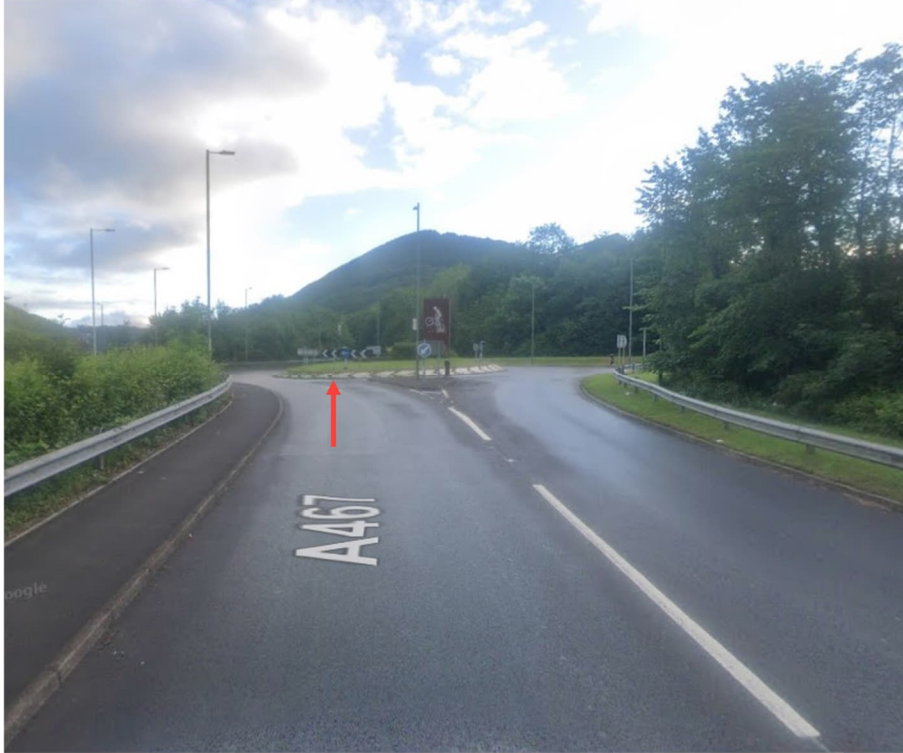
Source: Google Street View, 2023

PHOTOGRAPH 5 - A467/ A467/ B4251 ISLWYN ROAD/ A467 ROUNDABOUT



Source: Google Street View, 2023

PHOTOGRAPH 6 - A467/ TWYNCARN ROAD ROUNDABOUT



Source: Google Street View, 2023

PHOTOGRAPH 7 – A467



Source: Google Street View, 2023

PHOTOGRAPH 8 - A467/ B4591 ROUNDAABOUT/ COED CELYNEN DRIVE ROUNDAABOUT



Source: Google Street View, 2023

PHOTOGRAPH 9 - A467 MAIN ROAD/ A472/ BRIDGE STREET/ A467 PANT ROAD ROUNDABOUT



Source: Google Street View, 2023

PHOTOGRAPH 10 - A467 PANT ROAD/ CENTRAL AVENUE



Source: Google Street View, 2023

PHOTOGRAPH 11 - CENTRAL AVENUE/ OLD PANT ROAD/OLD PANT ROAD ROUNDABOUT



Source: Google Street View, 2023

PHOTOGRAPH 12 - OLD PANT ROAD



Source: Google Street View, 2023

PHOTOGRAPH 13 - OLD PANT ROAD/SITE ACCESS



Source: Google Street View, 2023

PHOTOGRAPH 14 – UNCLASSIFIED ROAD BENDS



Source: Google Street View, 2023

PHOTOGRAPH 15 – UNCLASSIFIED ROAD BEND





Annex B

AIL ROUTE SURVEY REPORT



Pell Frischmann

Trecelyn Wind Farm

Abnormal Indivisible Load Route Survey

September 2023

108067

This report is to be regarded as confidential to our Client and is intended for their use only and may not be assigned except in accordance with the contract. Consequently, and in accordance with current practice, any liability to any third party in respect of the whole or any part of its contents is hereby expressly excluded, except to the extent that the report has been assigned in accordance with the contract. Before the report or any part of it is reproduced or referred to in any document, circular or statement and before its contents or the contents of any part of it are disclosed orally to any third party, our written approval as to the form and context of such a publication or disclosure must be obtained.

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Contents

1	Introduction.....	3
1.1	Purpose of the Report	3
2	Site Background.....	4
2.1	Candidate Turbine	4
2.2	Proposed Delivery Equipment.....	4
3	Route Section Review	6
3.1	Port of Entry	6
3.2	Proposed Access Route	6
3.3	Route Constraints	7
3.4	Swept Path Assessment Results and Summary	16
3.5	Weight Review	16
3.6	Summary of Issues	16
4	Summary.....	18
4.1	Summary of Access Review	18
4.2	Further Actions	18

Figures

Figure 1: Superwing Carrier.....	4
----------------------------------	---

Tables

Table 2-1: Turbine Size Summary.....	4
Table 3-1: Constraint Summary	8
Table 3-2: ESDAL Consultees	16

Appendices

Appendix A Points of Interest	
Appendix B Swept Path Assessments	
Appendix C ESDAL Consultee Responses	

1 Introduction

1.1 Purpose of the Report

Pell Frischmann (PF) has been commissioned by Pennant Walters to undertake a survey of the Abnormal Indivisible Load (AIL) delivery route for wind turbine loads associated with the construction and development of Trecelyn Wind Farm, located to the east of Newbridge, Caerphilly.

The Route Survey Report (RSR) has been prepared to help inform Pennant Walters on the likely issues associated with the development of the site with regards to off-site transport and access for AIL traffic. This report is based upon a site visit review and identifies the key issues associated with AIL deliveries and notes that remedial works, either in the form of physical works or as traffic management interventions will be required to accommodate the predicted loads.

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

It is the responsibility of the turbine supplier to ensure that the entirety of the proposed access route is suitable and satisfactory and that all third party land rights have been secured. The turbine supplier will also be responsible for ensuring that the finalised proposals meet the appropriate level of health and safety consideration for all road users and are in accordance with the relevant legislation at the time of delivery.

2 Site Background

2.1 Candidate Turbine

Pennant Walters have indicated that the candidate turbine is the V117 turbine at a hub height of 143m. Vestas have been consulted and provided the following turbine details that could suit this specification. The details of the components are detailed in Table 2-1 below.

Table 2-1: Turbine Size Summary

Component	Length (m)	Width (m)	Height / Min Diameter (m)	Weight (t)
Blade	57.390	4.149	2.750	16.000
Base Tower	15.760	4.390	3.942	78.500
Mid Tower 1	17.360	3.942	3.929	61.500
Mid Tower 2	18.480	3.929	3.671	47.000
Top Tower	30.000	3.671	3.268	47.500
Hub	5.469	3.773	3.964	32.525
Nacelle	12.940	3.981	3.387	68.635
Drive Train	7.230	3.516	3.320	65.573

2.2 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 Carrier 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 1: Superwing Carrier



Figure 2: Tower Trailer



3 Route Section Review

3.1 Port of Entry

The proposed Port of Entry (POE) is Avonmouth. 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. Access from Newport is now highly constrained due to works on the M4 at Junction 28 and as such, no further consideration of this port has been undertaken.

The port has been used by renewables deliveries in the past for a large number of wind farms in Devon and Cornwall, including the import of 68m long blade loads for a development in South Wales. The port has sufficient quay facilities and is well located for the trunk road network.

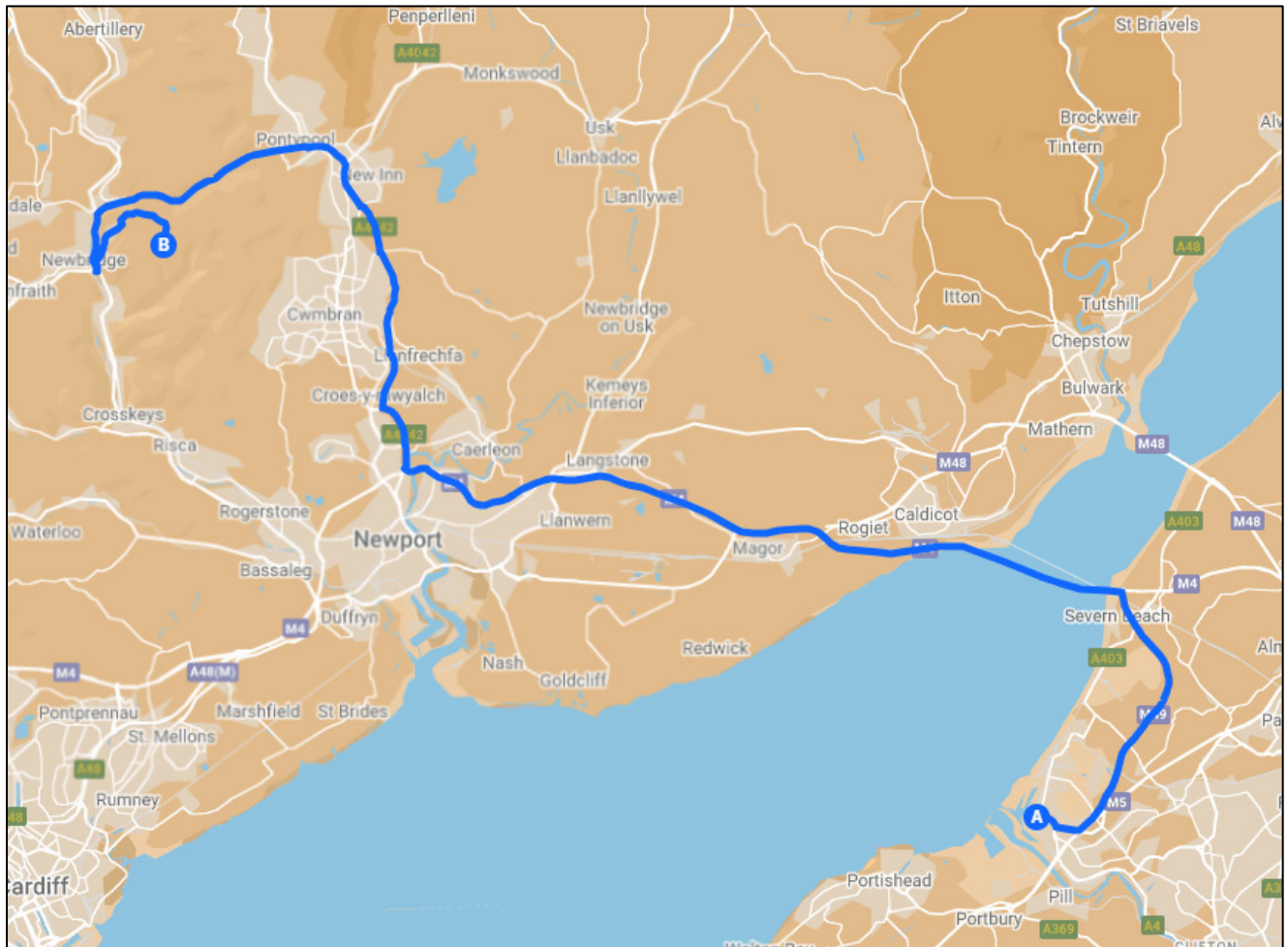
3.2 Proposed Access Route

The proposed route from the POE to site has been reviewed during a site visit. The route is as follows:

- Loads will exit the port and proceed onto King Road;
- Loads will take the second exit at St Andrew's Roundabout to join the A4 eastbound;
- Loads will take the second exit at St Brendan's Roundabout to join the M5 eastbound;
- At Junction 18A, loads will join the M49 northbound;
- At Pilning Interchange, loads will take the first exit to join the M4 westbound and cross the River Severn;
- At Junction 24A, loads will exit the M4 and take the first exit at the roundabout to join the A4042 northbound;
- Loads will continue northbound before turning onto the A472 at Pontypool Roundabout;
- Loads will continue westbound on the A472;
- At Crumlin, loads will turn left onto the A467 and will continue southbound;
- At the junction of the A467 and A472, loads will undertake a U turn and will proceed northbound;
- Loads will turn right onto Central Avenue and will continue northeast. They will continue ahead when the road becomes Old Pant Road; and
- Loads will continue eastbound using a new bypass route and existing roads. To the east of Pen-y-caeau, loads will split; loads will either proceed head or will continue to the south on the public road; and
- To the south, loads will turn left into the southern portion of the site via a new access junction.

The proposed access route section is illustrated in Figure 3.

Figure 3: Proposed Access Route










3.3 Route Constraints






The constraints noted on the route are detailed in Table 3-1. These cover all constraints only on the section shown in Figure 3-1 above. Transport issues within the development site have not been taken into consideration.




Plans illustrating the location of the constraints are provided in Appendix A.




Table 3-1: Constraint Summary





POI	Key Constraint	Details
1 & 2	Avonmouth Port Exit & St Andrew's Roundabout 	<p>Loads will exit the port via the access gate and proceed onto King Road eastbound before taking the second exit at the roundabout to join the A4 eastbound.</p> <p>A swept path assessment has been undertaken and indicates that loads will over-sail the central island slightly, though no physical mitigation measures will be required.</p>
3	A4 St Brendan's Roundabout 	<p>Loads will take the second exit at the roundabout to join the M5 eastbound.</p> <p>A swept path assessment has been undertaken and indicates that no physical mitigation measures will be required. Loads will require access to all entry, circulation, and exit lanes of the roundabout.</p>
4	M5 Slip Road / M49 Merge 	<p>Loads will exit the M5 via the slip road to Junction 18A and merge onto the M49 northbound.</p> <p>Vehicle escorts must ensure that loads can merge safely, and that trailing traffic does not attempt to merge into the convoy at this location.</p>





POI	Key Constraint	Details
5	M49 Pilning Interchange 	<p>Loads will take the first exit at the roundabout to join the M4 westbound.</p> <p>A swept path assessment has been undertaken and indicates that the blade tip will over-sail the safety barrier on the central reservation of the approach arm. Two sets of chevron signs should be removed. Escorts must hold back oncoming vehicles during load deliveries.</p> <p>Loads will over-sail the safety barrier on the left-hand verge where vegetation should be trimmed.</p> <p>Loads will then cross the River Severn and will proceed into Wales on the M4.</p>
6	M4 Junction 25A 	<p>Loads will depart the M4 and will join the A4042.</p> <p>The escorts should ensure that the convoy is protected from the side at this location and that other traffic does not try to merge in between AIL vehicles.</p>
7	A4042 Junction 	<p>Loads will turn right at the roundabout and will proceed northbound on the A4042.</p> <p>A swept path assessment has been undertaken and indicates that the blade tip will oversail the lane separating island on the entry to the junction.</p> <p>One road sign, one lighting column and a bollard should be removed from the southern arm splitter island. Loads will also oversail the central island of the junction. No physical mitigation works are required.</p> <p>Loads will require access to all lanes at the junction and careful traffic management will be required, especially in the segregated lanes.</p>
8	A4042 Roundabout 	<p>Loads will turn right at the roundabout and will proceed northbound on the A4042.</p> <p>A swept path assessment has been undertaken and indicates that loads will oversail the edge of the central island. No physical mitigation works are required.</p> <p>Loads will require access to all lanes at the junction.</p>



POI	Key Constraint	Details
9	A4042 Overbridge 	<p>Loads will continue ahead on the A4042.</p> <p>At the overbridge for Malthouse Lane, high loads may move to Lane 2 to improve clearances to the structure, depending upon haulier load height settings.</p>
10	A4042 Crown Roundabout 	<p>Loads will continue ahead at the roundabout and will proceed northbound on the A4042.</p> <p>A swept path assessment has been undertaken and indicates that loads will oversail the edge of the central island. No physical mitigation works are required.</p> <p>Loads will also oversail the southern verge, however no physical works are required.</p> <p>Loads will require access to all lanes at the junction.</p>
11	A4042 Turnpike Roundabout 	<p>Loads will continue ahead at the roundabout and will proceed northbound on the A4042.</p> <p>A swept path assessment has been undertaken and indicates that loads will oversail the western edge of the central island. No physical mitigation works are required.</p> <p>Loads will require access to all lanes at the junction.</p>
12	A4042 Edlogan Way Roundabout 	<p>Loads will continue ahead at the roundabout and will proceed northbound on the A4042.</p> <p>A swept path assessment has been undertaken and indicates that the blade tip will oversail the central reserve and the western verge of the entry arm to the junction. No physical works are required at either location.</p> <p>Loads will also oversail the western edge of the central island. No physical mitigation works are required.</p> <p>Loads will require access to all lanes at the junction.</p>
13	A4042 Cwmbran Roundabout 	<p>Loads will continue ahead at the roundabout and will proceed northbound on the A4042.</p> <p>A swept path assessment has been undertaken and indicates that the blade tip will oversail the central reserve and the of the entry arm to the junction. No physical works are required at this location.</p> <p>Loads will require access to all lanes at the junction.</p>

POI	Key Constraint	Details
14	A4042 / A472 Pontypool Roundabout 	<p>Loads will depart the A4042 and will join the A472 westbound at the second exit.</p> <p>A swept path assessment has been undertaken and indicates that no physical mitigation works are required.</p> <p>Loads will require access to all lanes at the junction.</p>
15	A472 / A4043 Roundabout 	<p>Loads will continue ahead at the junction and will proceed westbound on the A472.</p> <p>A swept path assessment has been undertaken and indicates that loads will need to use both circulating lanes of the junction, requiring the segregation island to be over-run at two points. A load bearing surface should be provided on the island and the bollards removed from the over-run and oversail areas.</p> <p>Loads will also oversail the central island, where one chevron sign should be removed.</p>
16	A472 / A467 Junction, Crumlin 	<p>Loads will turn left onto the A467 at the junction.</p> <p>A swept path assessment has been undertaken and indicates that the optimum path to reduce the works required at the junction would be for loads to contraflow the approach to the junction, avoiding the need to alter the crossing islands located prior to the junction.</p> <p>Loads will over-run the left turn traffic island where three bollards and two traffic signal poles should be removed. A load bearing surface will be required and the existing kerbs protected.</p> <p>Blade loads will then cross into the northbound lanes requiring the provision of load bearing surface on the splitter island. Tower and other loads do not require to undertake this manoeuvre.</p> <p>The convoy escorts will need to hold oncoming traffic on the southern arm back from the junction and shut down the junction during the transits. Traffic management proposals should be discussed with the Police and local roads authority to develop a safe working process for this manoeuvre.</p>

POI	Key Constraint	Details
17	A467 / A472 Roundabout 	<p>Loads will undertake a U turn at the roundabout. To reduce the physical works on the A467 / Common Avenue junction is it proposed that loads undertake a U turn at the junction.</p> <p>A swept path assessment has been undertaken and indicates that loads will oversail the edges of the junction where two road signs and two bollards should be removed.</p> <p>Loads will oversail the central island of the junction where three chevron signs should either be removed or relocated.</p> <p>On existing the junction, loads will oversail the exist verge and splitter island where three road signs and two bollards should be removed. Vegetation trimming in the verge will be required.</p> <p>To enable the manoeuvres to be undertaken safely, it is suggested loads waiting to undertake the U turn are held in advance of POI 18, to allow sufficient space for the U turn to occur. A traffic management plan to safely enable the various manoeuvres will be required at this location.</p>
18	A467 / Central Avenue Junction 	<p>Loads will turn right at the junction, joining Central Avenue.</p> <p>A swept path assessment has been undertaken and indicates that a load bearing surface and oversail area is required on the inside of the junction. Three road signs, two lighting columns and the pedestrian railing will need to be removed and a load bearing surface on the footway laid.</p> <p>The crossing island on Central Avenue will need to be temporarily removed along with the two bollards on it. In addition, one road sign and pedestrian fencing on the northern verge will need to be removed.</p> <p>Parking on Central Avenue will need to be suspended during deliveries to allow the full width of the road to be made available. A Temporary Traffic Regulation Order (TTRO) or voluntary agreement with residents will be required.</p> <p>The tree canopy along Central Avenue and the remaining route to site will need to be trimmed to provide a clear head height of 5m. A review of the tree canopy by ecologists may be required and trimming works are likely to be dependant upon seasonal licencing periods and the agreement with the local road officers.</p>
19	Parked Vehicles 	<p>Parked cars may restrict the available width of the road at this location. A Temporary Traffic Regulation Order (TTRO) or voluntary agreement with residents will be required.</p>

POI	Key Constraint	Details
20	Old Pant Road Roundabout 	<p>Loads will continue ahead at the roundabout and will proceed northbound on Old Pant Road.</p> <p>A swept path assessment has been undertaken and indicates that a temporary load bearing surface is laid through the central island of the junction. Two chevron posts and vegetation should be removed from the island.</p>
21	Old Pant Road Chicane 	<p>Loads will continue ahead. The chicane signage and five bollards should be removed and a load bearing surface laid.</p>
22	Old Pant Road Bend 1 	<p>Loads will continue ahead through the bend in the road.</p> <p>A swept path assessment has been undertaken and indicates that load will oversail the inside of the bend where parking will need to be suspended.</p> <p>The blade tip will oversail the outer verge where two lighting columns and one tree will need to be removed. Verge vegetation should be trimmed back.</p> <p>Parked cars will restrict the available width of the road at this location. A Temporary Traffic Regulation Order (TTRO) or voluntary agreement with residents will be required to remove parked vehicles at this location.</p> <p>The tree canopy should be trimmed to provide a clear head height of 5m. A review of the tree canopy by ecologists may be required and trimming works are likely to be dependent upon seasonal licencing periods and the agreement with the local road officers.</p>
23	Old Pant Road Bend 2 	<p>Loads will continue ahead through the bend in the road.</p> <p>A swept path assessment has been undertaken and indicates that an over-run surface is required on the outer verge of the junction where temporary load bearing surface will be required. One stone mounted sign should be removed and protection made to the existing kerbs and any underground services.</p> <p>Loads will over-run the inside of the junction. Two lighting columns, fencing and vegetation will need to be removed and the existing ground level lowered. Underground services should be protected. Third party land rights are necessary at this location.</p> <p>Parked cars will restrict the available width of the road at this location. A Temporary Traffic Regulation Order (TTRO) or voluntary agreement with residents will be required to remove parked vehicles at this location.</p> <p>On the outskirts of the village, the speed limit sign in the southern verge should be removed to enable loads to oversail the verge.</p>

POI	Key Constraint	Details
24	Overhead Tree Canopy 	<p>The overhead tree canopy will need to be trimmed along its length from POI 24 to the access points. A clear head height of 5m is required.</p> <p>Tree canopy trimming can be subject to ecological constraints and consultation with an ecologist and the local roads department is required.</p>
25	Track Diversion 	<p>Loads will divert from the public road to avoid a highly constrained road junction. A swept path assessment has been undertaken and indicates that hedge and fence removal is required and that third party land rights are necessary.</p> <p>The new access track should be constructed to turbine supplier standards and the entry may need to be finished in a metalled surface to prevent debris being transported onto the public road network.</p>
26	Track Diversion Merge 	<p>Loads will rejoin the public road from the diversion route. A swept path assessment has been undertaken and indicates that loads will require the removal of walls, fencing and hedges to create the merge junction. Third party land rights are necessary.</p> <p>The public road will require to be widened to a minimum of 4.5m to accord with turbine supplier standards.</p> <p>Loads will oversail the verge where vegetation trimming and tree canopy works will be required.</p> <p>It is recommended that the public road section from POI 26 to POI 29 is reviewed on a topographical base plan to fully inform the necessary engineering works and associated land deals.</p>
27	Road Widening 	<p>The public road will need to be widened from this point onwards to accord with the minimum track width of 4.5m required by Vestas.</p> <p>Works to enable the widening works will be undertaken in what is assumed to be within the limits of road adoption. A third party land review is recommended.</p> <p>Obstructions in the verge should be removed to enable the road widening works.</p>

POI	Key Constraint	Details
28	Unclassified Road Bend 	<p>Loads will continue ahead through the bend in the road.</p> <p>A swept path assessment has been undertaken and indicates that the blade tip will oversail the northern verge. No physical mitigation is required.</p> <p>The road will need to be widened to a minimum of 4.5m. Loads will oversail and over-run the southern verge where the existing wall and one overhead utility pole will need to be removed. Third party land will be required.</p>
29	Unclassified Road Bend & Northern Access 	<p>At this location, loads will either continue ahead to the northern turbine array or will proceed around the bend to the right to access the southern array.</p> <p>A swept path assessment has been undertaken and indicates that cattle grid gates will need to be removed. The cattle grid itself may need reinforcing to accept an axle load of 12 tonnes.</p> <p>Tracks leading to the northern turbine should be constructed in accordance with turbine supplier standards.</p> <p>Loads proceeding to the southern turbines will require a load bearing surface will be required. Third party land will be required.</p> <p>The public road leading to the southern area will need to be widened from this point onwards to accord with the minimum track width of 4.5m required by Vestas.</p> <p>A traffic management plan to segregate public road movements from the construction traffic is recommended in the interests of road safety and CDM responsibilities. As the layout of proposed wind farm infrastructure is unclear, it is assumed that separate tracks will be provided and that this point represents the site access for the wider wind farm.</p>

3.4 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
- Magenta – The oversail tracked path of the load where it encroaches outwith the trailer (load swept path).

Where mitigation works are required, the extents of overrun and oversail areas are illustrated on the swept path drawings.

Please note that where assessments have been undertaken using Ordnance Survey (OS) base mapping, CAD based aerial mapping and historic topographical data, there may be errors in these data sources.

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, aerial mapping, historic topographical surveys or client supplied data.

Where third party land is required, it is recommended that all land deals allow for all necessary construction works, retaining earthworks, infrastructure and material stockpiling to be accounted for.

3.5 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 3-2 and all have been contacted to ascertain if there are any relevant constraints that should be noted. The feedback from the consultees is provided in Appendix C, where received.

Table 3-2: ESDAL Consultees

Organisation	Email Address
South Wales Trunk Road Agent	abnormalloads@southwales-tra.gov.uk
Welsh Government	AbnormalLoads@gov.wales
Caerphilly County Borough Council / Monmouth Council / Torfaen Council	AbnormalLoads@monmouthshire.gov.uk
Network Rail	AbLoadsESDAL@networkrail.co.uk
National Highways	southwestabnormalloads@nationalhighways.co.uk

3.6 Summary of Issues

It is strongly suggested that following a review of this document, Pennant Walters 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 that swept path results are completed;
- A further 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 height clearances 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 are 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; 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.

4 Summary

4.1 Summary of Access Review

PF has been commissioned by Pennant Walters to prepare a route survey report to examine the issues associated with the proposed delivery route to Trecelyn Wind Farm, located to the east of Newbridge.

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

The report is presented for consideration to Pennant Walters. Various road modifications, structural reviews and interventions are required to successfully negotiate the section of route.

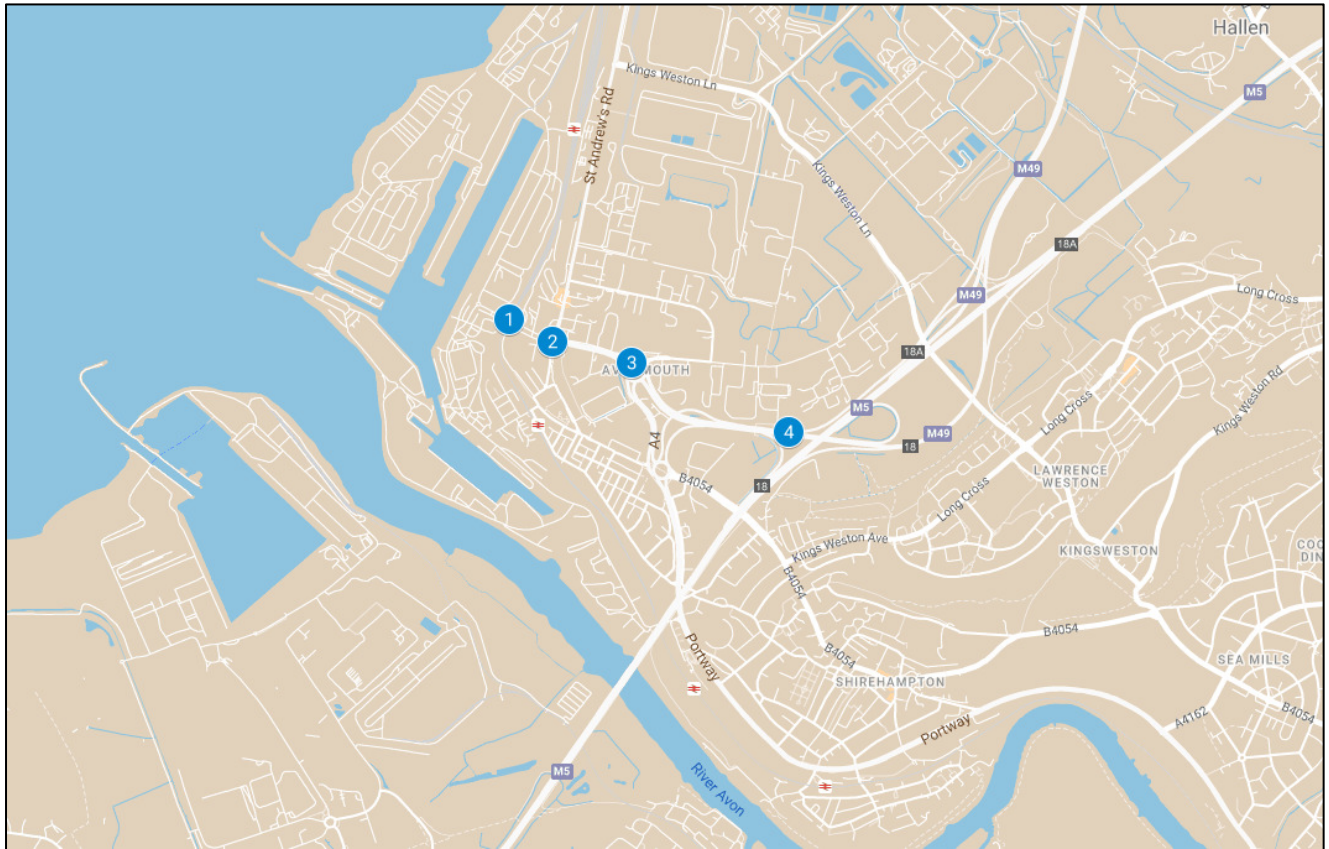
4.2 Further Actions

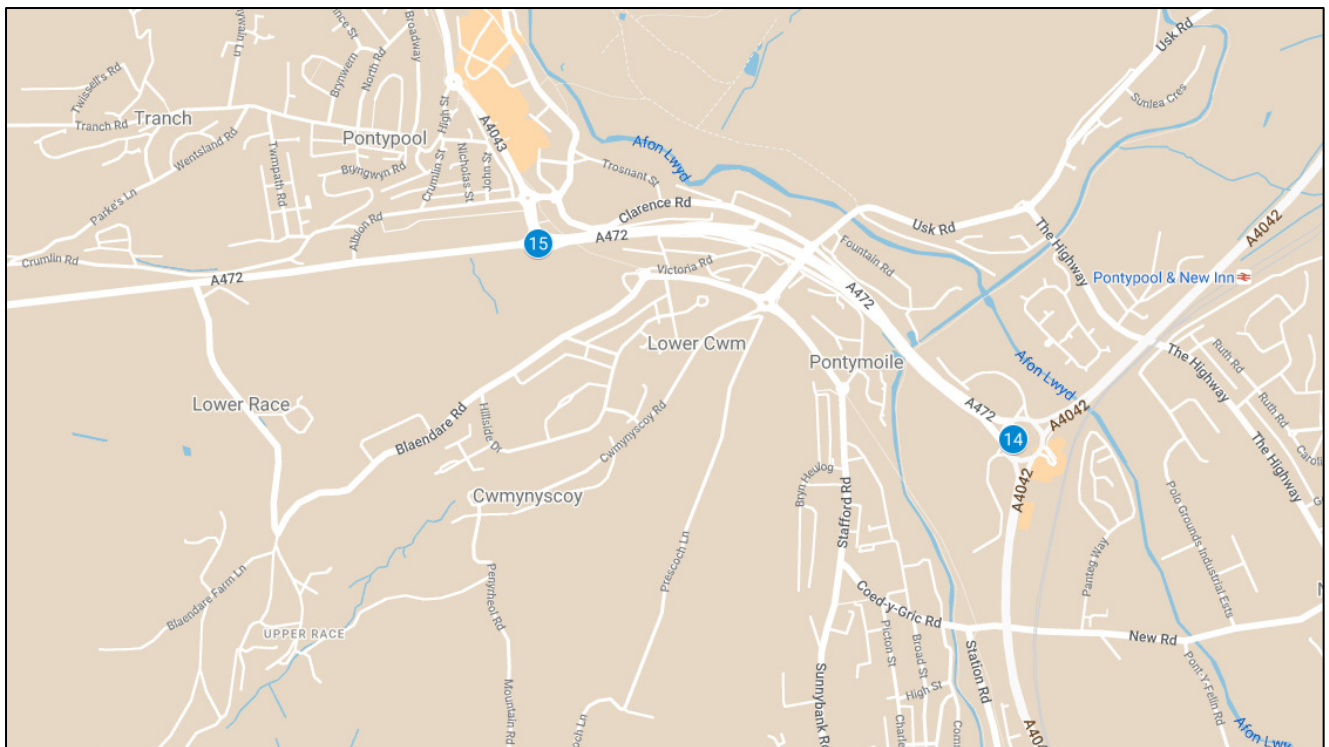
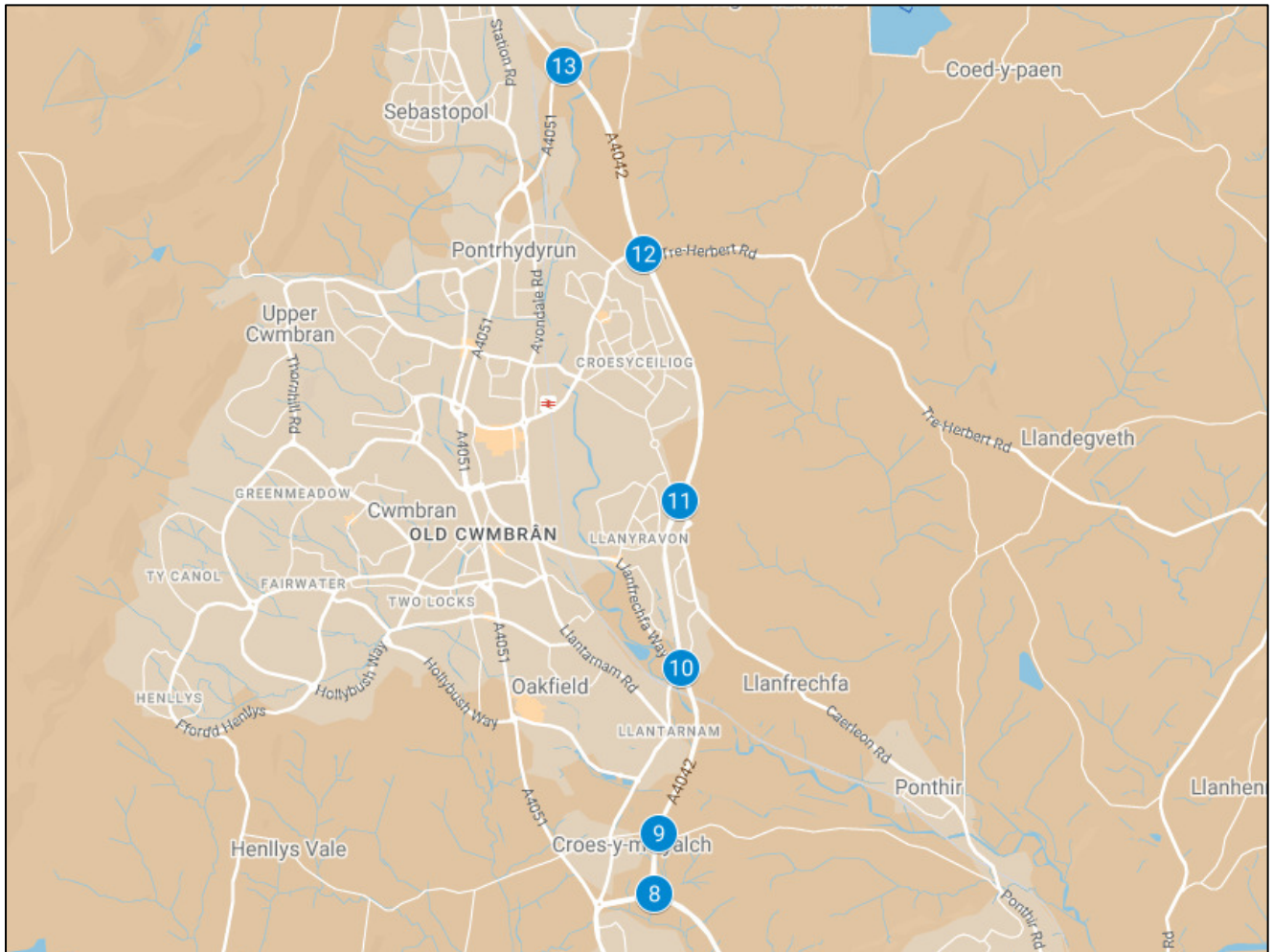
The following actions are recommended to pursue the transport and access issues further:

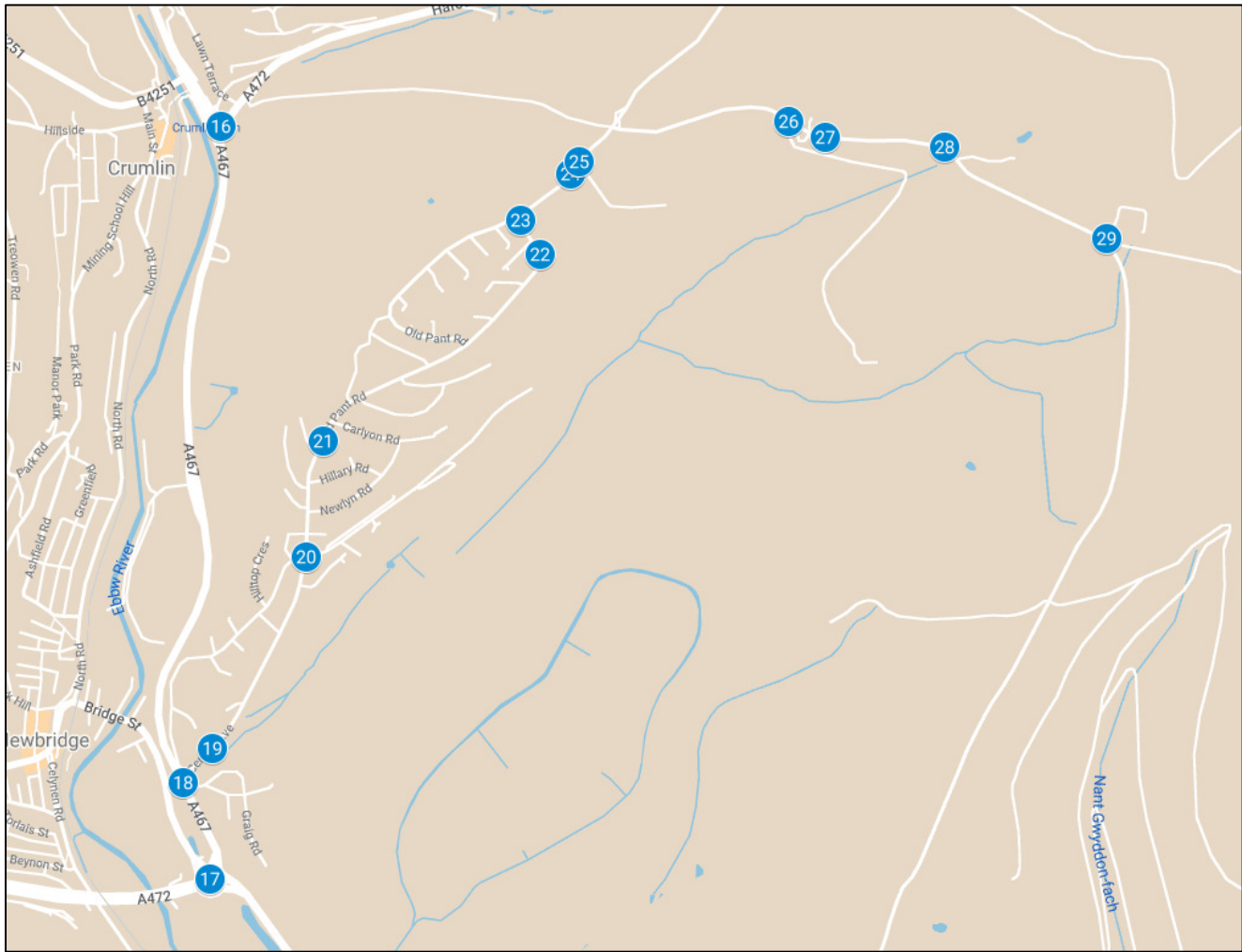
- Prepare detailed mitigation design proposals to help inform the land option / consultee discussions;
- Obtain the necessary land options;
- Undertake discussion with the affected utility providers and roads agencies;
- Obtain the necessary statutory licences to enable the mitigation measures; and
-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

Appendix A Points of Interest

An electronic copy of the POI plans can be found here: <https://www.google.com/maps/d/edit?mid=1AU-vOP9rYN2mk5WrplKqg5JydJnjTNo&usp=sharing>







Blade

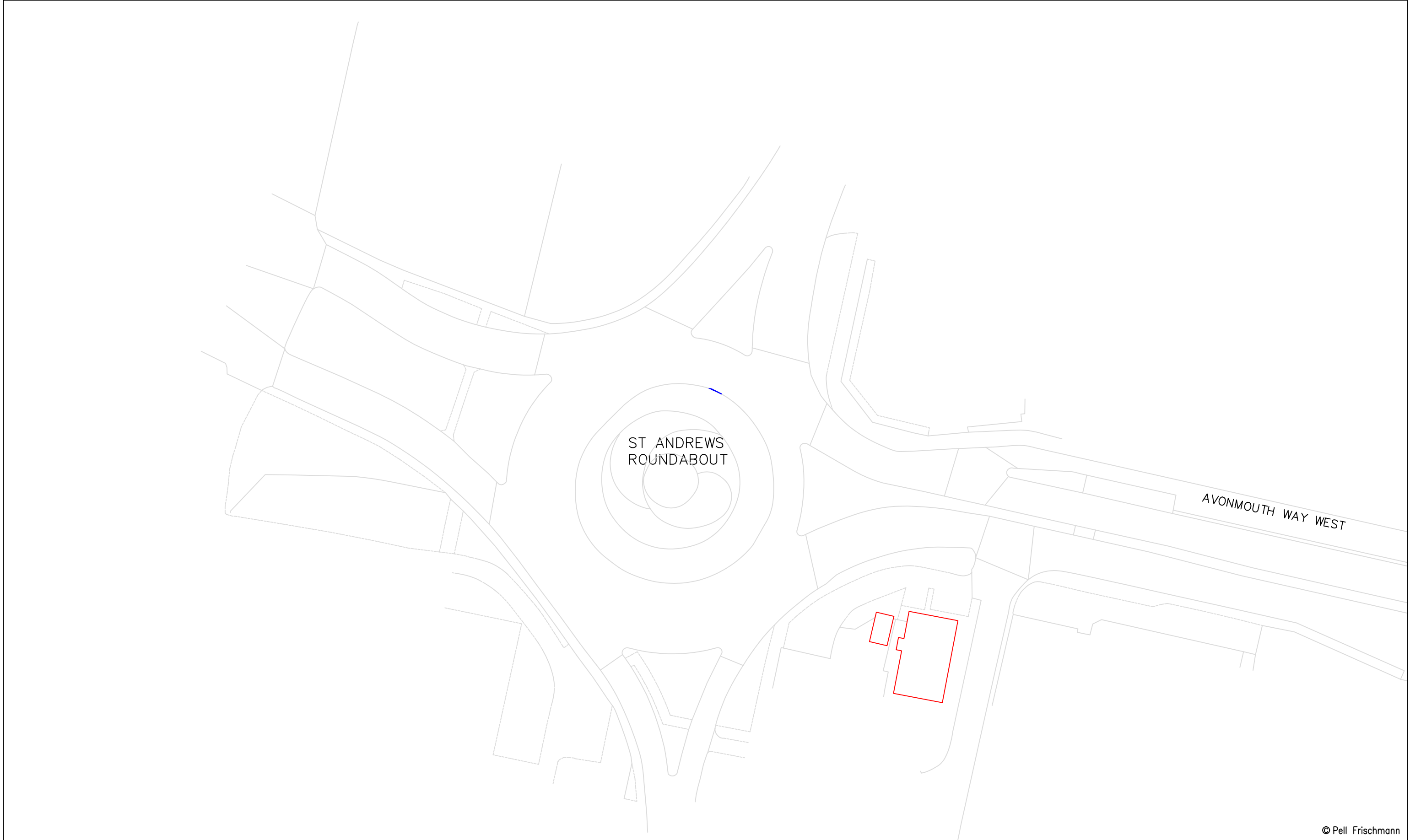


Tower



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				Drawn	GB	04/09/23	File No. 230904 Trecelyn Tracking.dwg	
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				Checked	GB	04/09/23	Drawing Status Draft	
Client Pennant Walters		Drawing Title Vestas V117 Blade & Tower		Point of Interest		1 & 2		
Key <div><div>Wheel SPA</div><div>Body SPA</div><div>Load SPA</div><div>Indicative</div><div>Over-run</div><div>Over-sail</div></div>				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 1
		SPA Location Avonmouth Port Exit & St Andrew's Roundabout						



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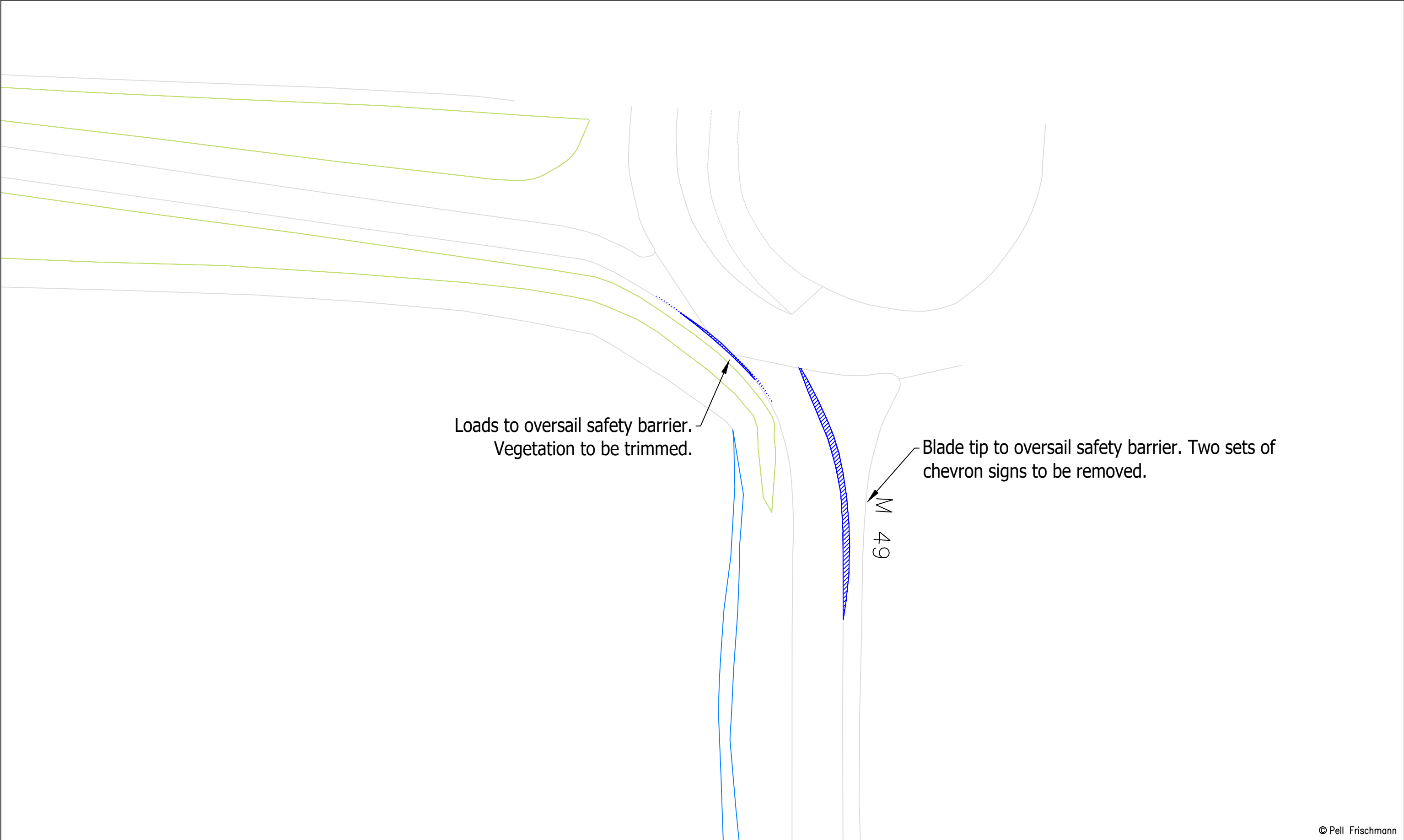
<div><div>Pell Frischmann</div><div>93 GEORGE STREET, EDINBURGH, EH2 3ES</div><div>Tel: +44 (0)131 240 1270</div><div>Email: pferdinburgh@pellfrischmann.com</div><div>www.pellfrischmann.com</div></div>	Project	Trecelyn Wind Farm			Name	Date	Scale		
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Client	Pennant Walters	Drawing Title	Vestas V117 Blade & Tower		Point of Interest		1 & 2		
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Client	Pennant Walters	Drawing Title	Vestas V117 Blade & Tower		Point of Interest		3	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 1	
Key	<div><div></div>Wheel SPA</div> <div><div></div>Body SPA</div> <div><div></div>Load SPA</div> <div><div></div>Indicative</div> <div><div></div>Over-run</div> <div><div></div>Over-sail</div>	SPA Location	St Brendan's Roundabout		NO MITIGATION REQUIRED				



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			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 1		
						SPA Location M49 Pilning Interchange	
Key	<div><div></div>Wheel SPA</div>	<div><div></div>Body SPA</div>	<div><div></div>Load SPA</div>	<div><div></div>Indicative</div>	<div><div></div>Over-run</div>	<div><div></div>Over-sail</div>	

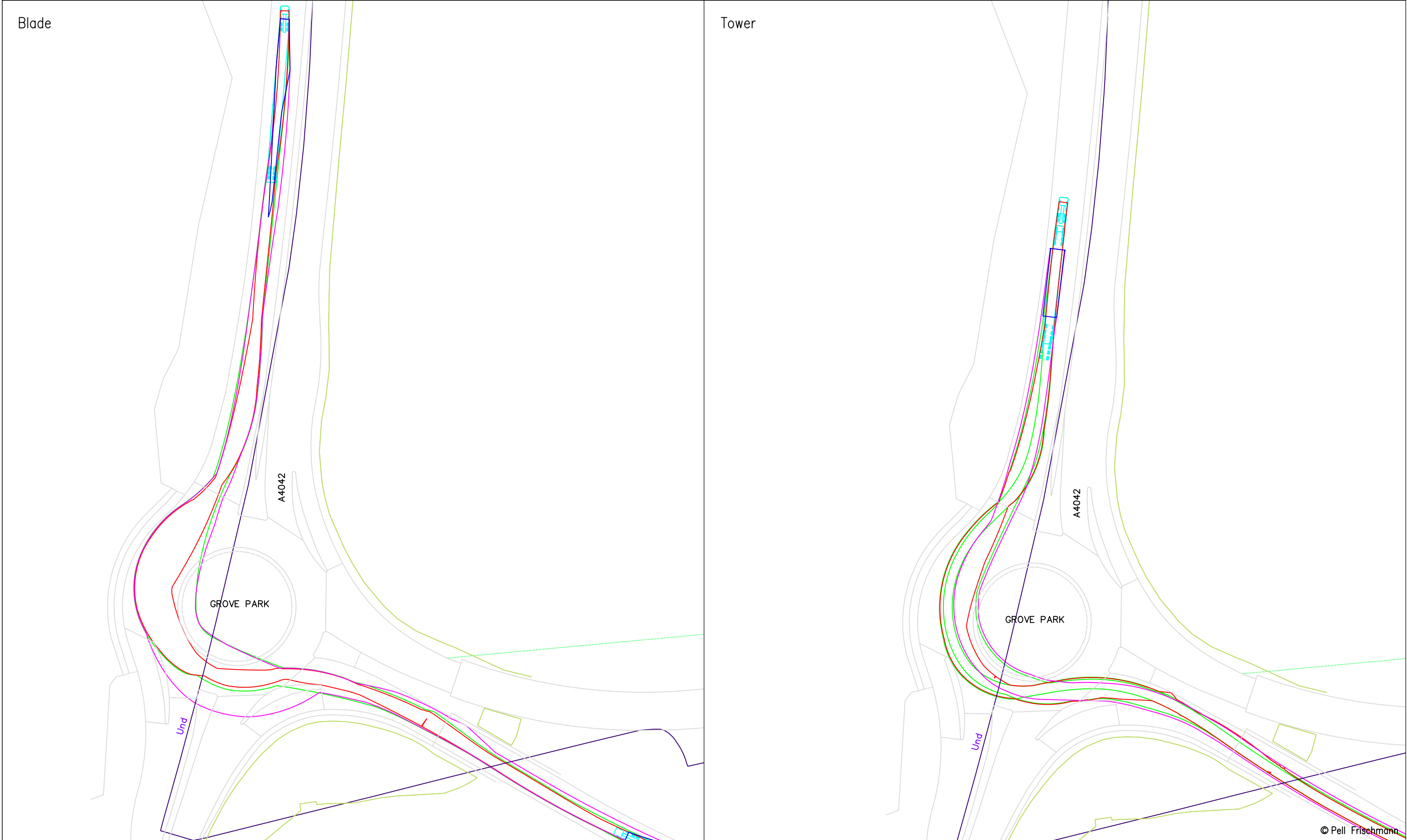


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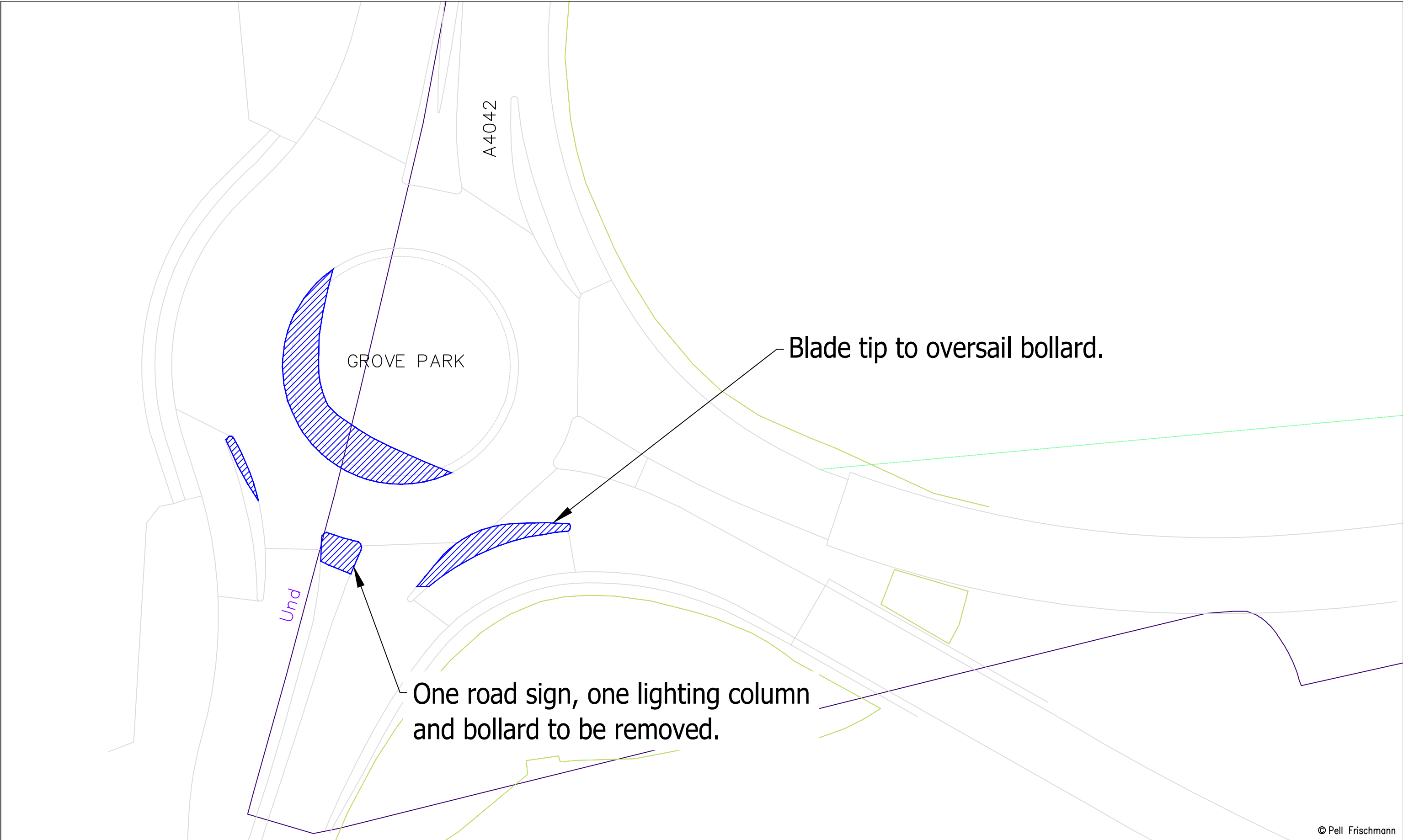
<div><div>Pell Frischmann</div><div>93 GEORGE STREET, EDINBURGH, EH2 3ES</div><div>Tel: +44 (0)131 240 1270</div><div>Email: pfeinburgh@pellfrischmann.com</div><div>www.pellfrischmann.com</div></div>	Project Trecelyn Wind Farm			Name	Date	Scale 1:750 @ A3	
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Client Pennant Walters	Drawing Title Vestas V117 Blade & Tower		Point of Interest		5		
			Drawing No. SK03A	Notes: 1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.		Revision 1	
Key <div><div>Wheel SPA</div><div>Body SPA</div><div>Load SPA</div><div>Indicative</div><div>Over-run</div><div>Over-sail</div></div>	SPA Location M49 Pilning Interchange						

Blade

Tower

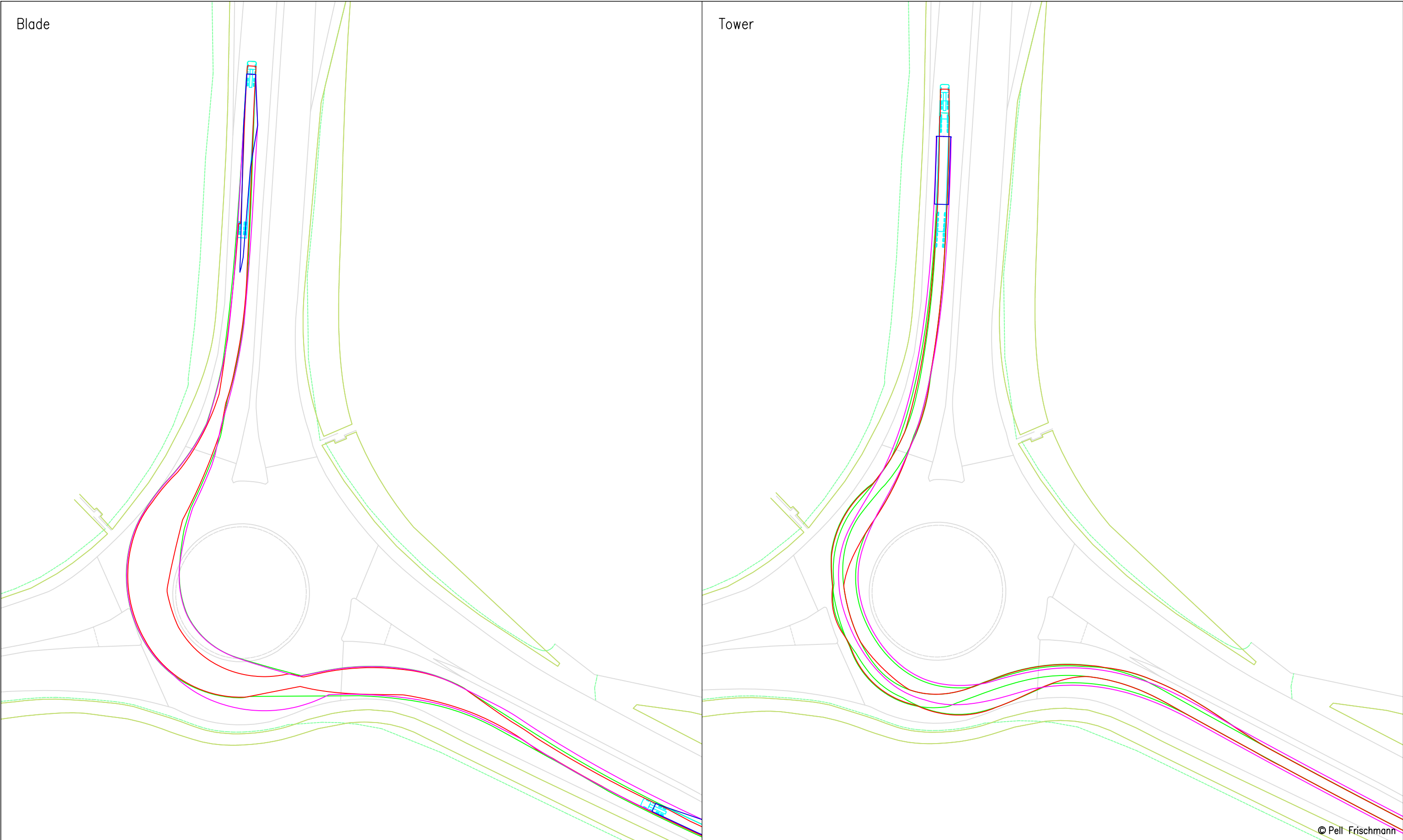


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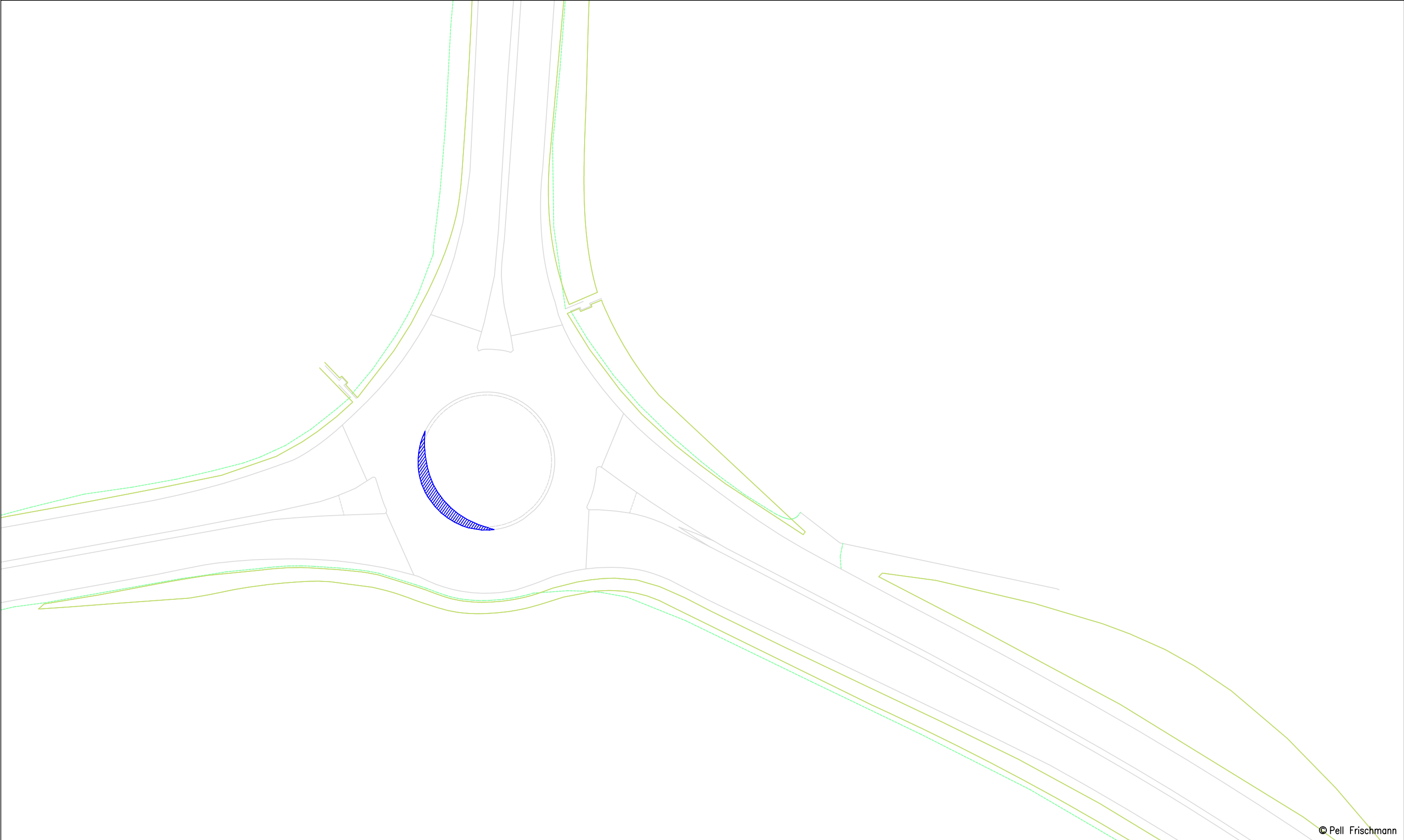


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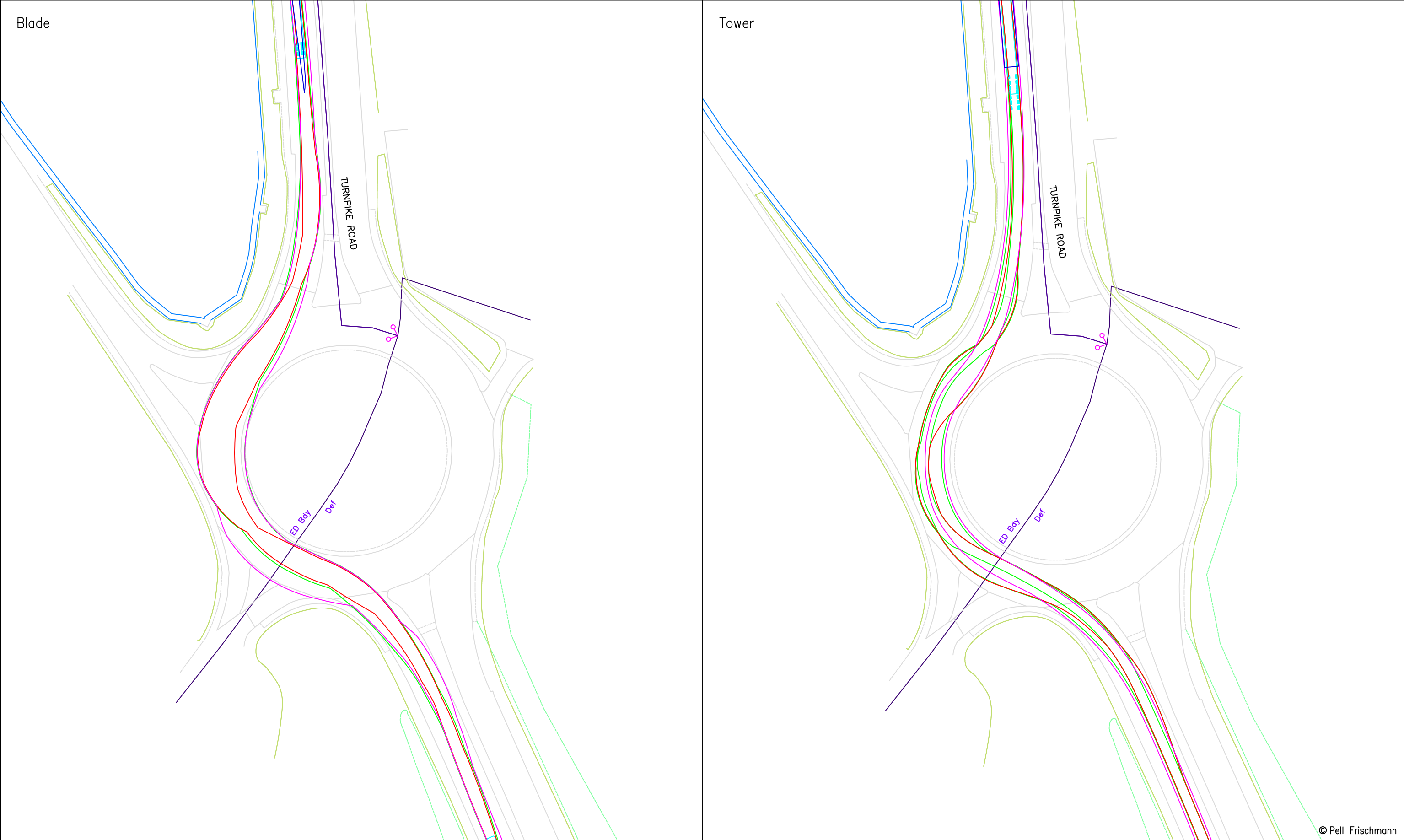
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Key <div><div>Wheel SPA</div><div>Body SPA</div><div>Load SPA</div><div>Indicative</div><div>Over-run</div><div>Over-sail</div></div>		SPA Location A4042 Roundabout		Revision 1				



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Client Pennant Walters	Drawing Title Vestas V117 Blade & Tower		Point of Interest		8		
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Key <div><div>Wheel SPA</div><div>Body SPA</div><div>Load SPA</div><div>Indicative</div><div>Over-run</div><div>Over-sail</div></div>	SPA Location A4042 Roundabout						

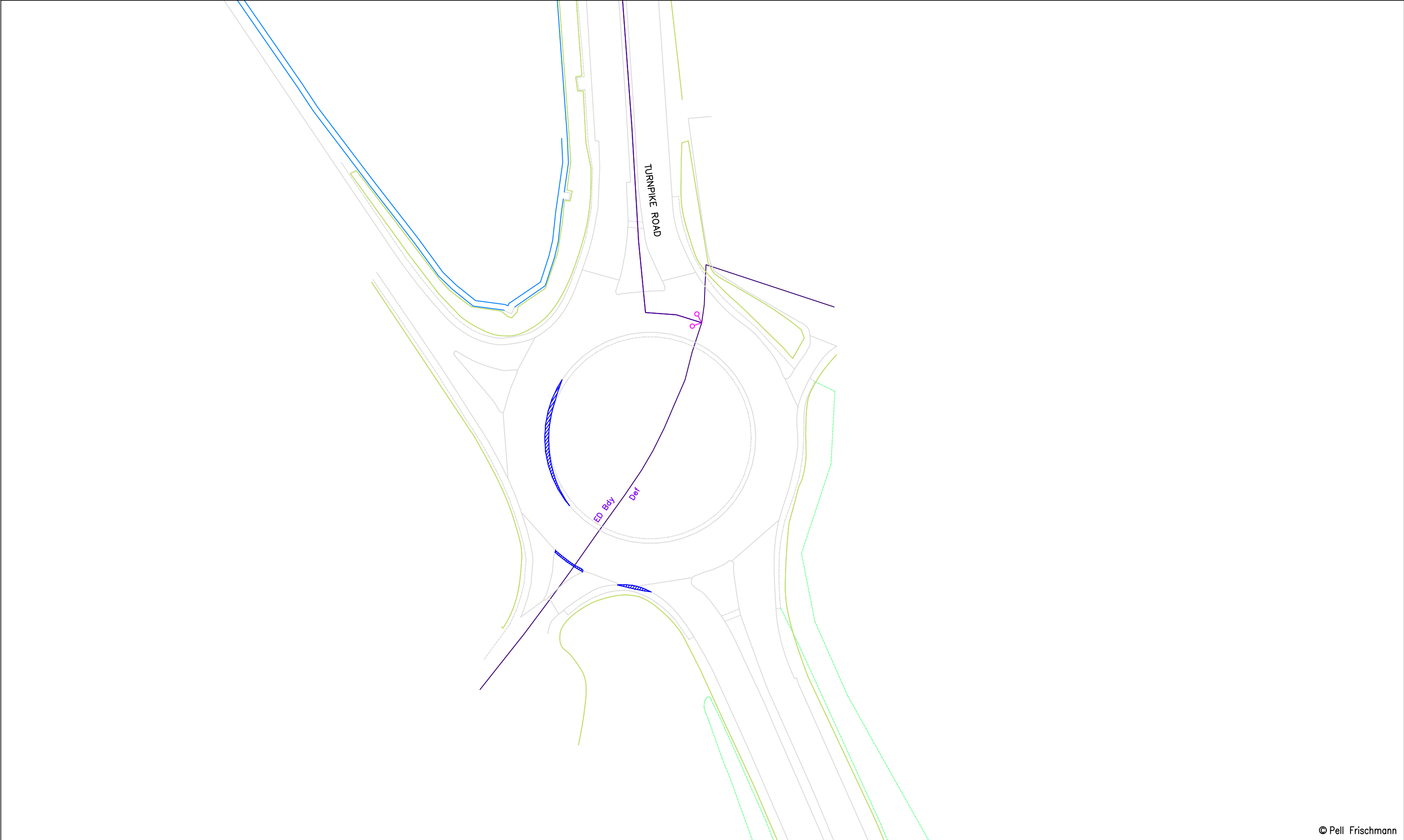


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Client Pennant Walters		Point of Interest		8			
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Key <div><div>Wheel SPA</div><div>Body SPA</div><div>Load SPA</div><div>Indicative</div><div>Over-run</div><div>Over-sail</div></div>	SPA Location A4042 Crown Roundabout				Revision 1		



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Client Pennant Walters	Drawing Title Vestas V117 Blade & Tower		Point of Interest		10			
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Key <div><div>Wheel SPA</div><div>Body SPA</div><div>Load SPA</div><div>Indicative</div><div>Over-run</div><div>Over-sail</div></div>	SPA Location A4042 Crown Roundabout							

Blade

Tower

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				Checked	GB	04/09/23				
Client Pennant Walters		Drawing Title Vestas V117 Blade & Tower		Point of Interest		11				
Key <div><div>Wheel SPA</div><div>Body SPA</div><div>Load SPA</div><div>Indicative</div><div>Over-run</div><div>Over-sail</div></div>		SPA Location A4042 Turnpike Roundabout		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 1	

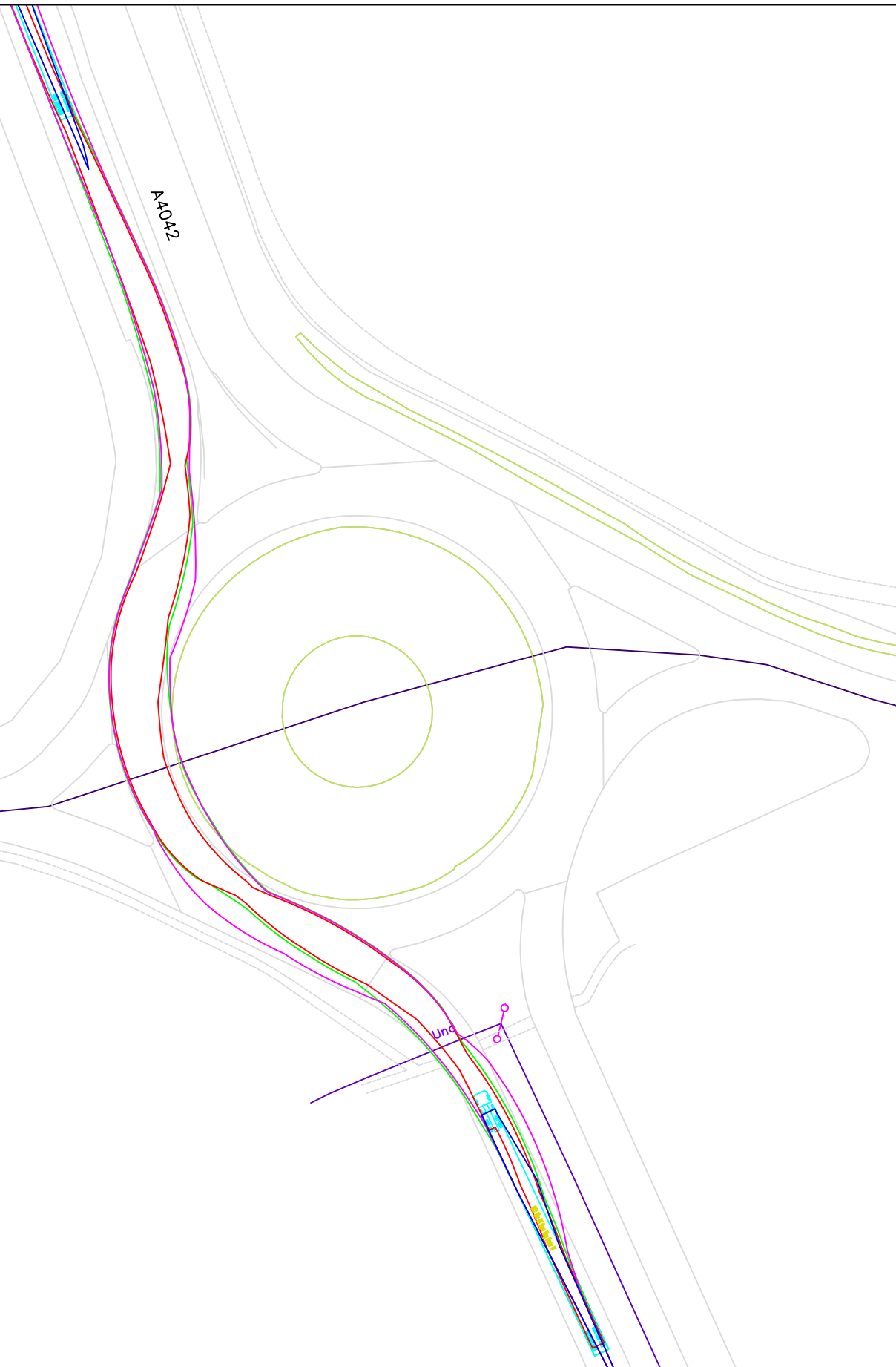


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Key <div><div>Wheel SPA</div><div>Body SPA</div><div>Load SPA</div><div>Indicative</div><div>Over-run</div><div>Over-sail</div></div>	SPA Location A4042 Turnpike Roundabout						

Blade

Tower



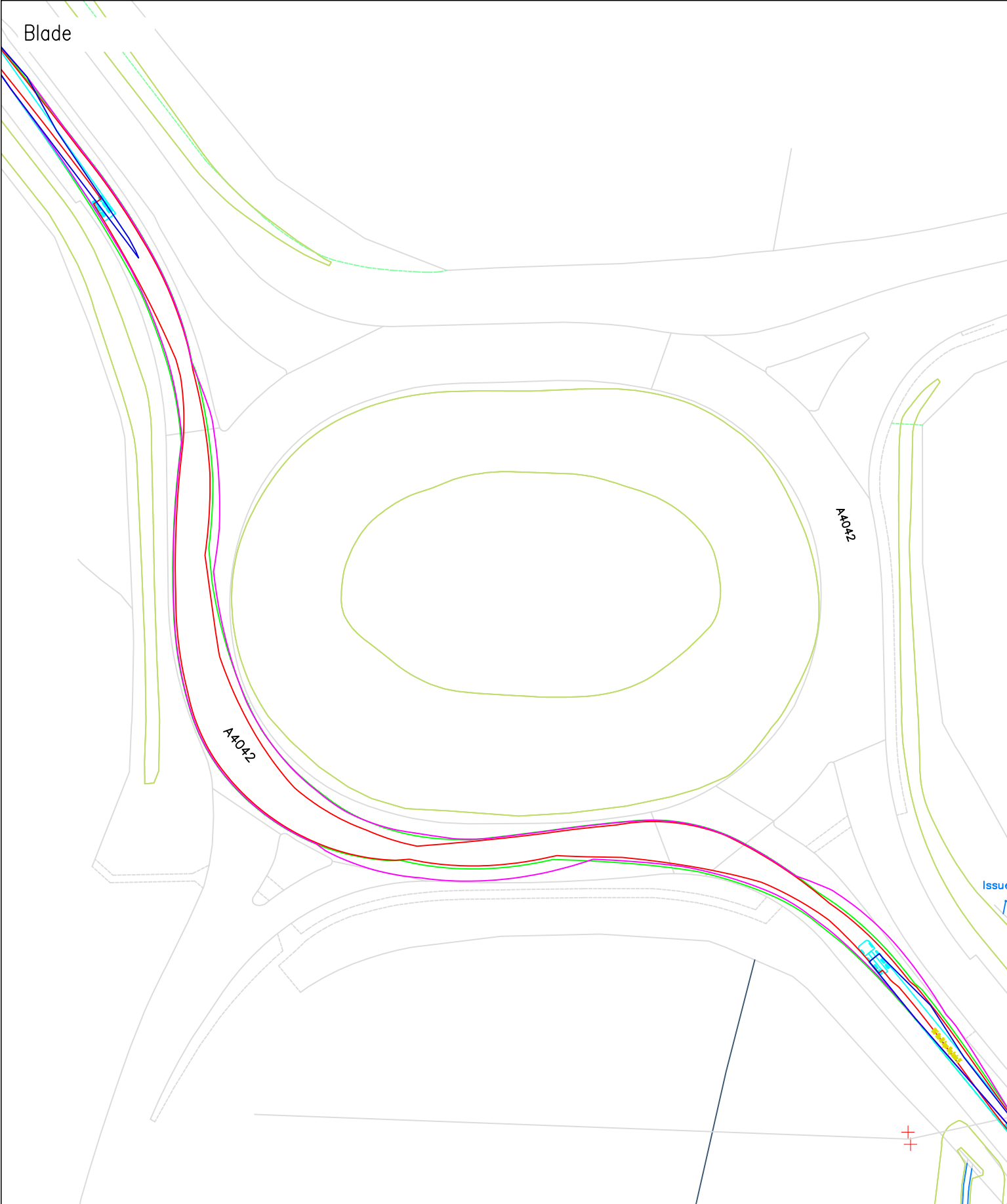
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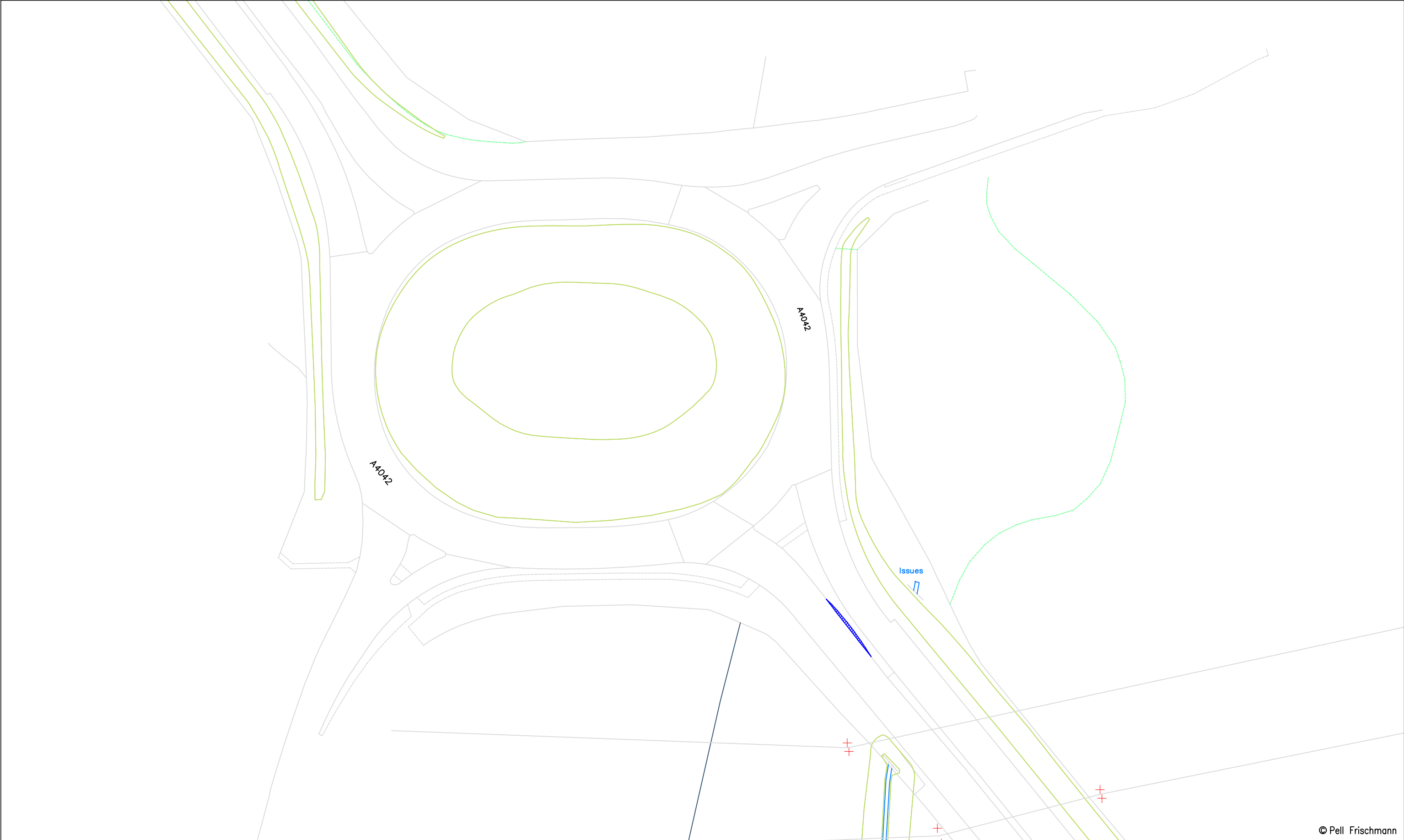


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			Drawing No. SK08A	Notes: 1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.		Revision 1	
Key <div><div>Wheel SPA</div><div>Body SPA</div><div>Load SPA</div><div>Indicative</div><div>Over-run</div><div>Over-sail</div></div>	SPA Location A4042 Edlogan Roundabout						

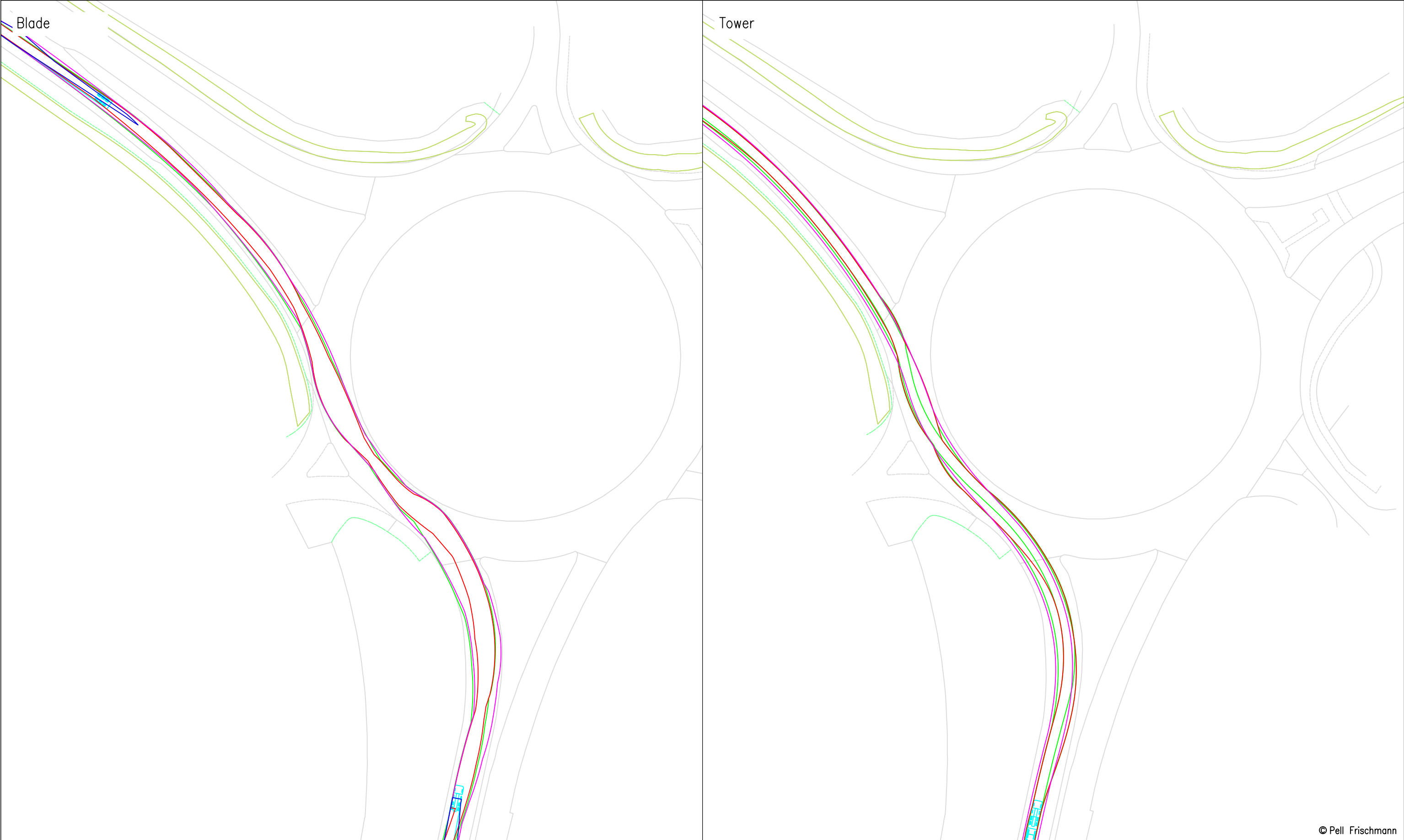


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		Drawing Title		Vestas V117 Blade & Tower		Drawn		GB	04/09/23	
		SPA Location		A4042 Cwmbran Roundabout		Designed		TL	04/09/23	
						Checked		GB	04/09/23	
Client		Pennant Walters		Point of Interest				13	Drawing Status	
<div>Key</div> <div><div>Wheel SPA</div><div>Body SPA</div><div>Load SPA</div><div>Indicative</div><div>Over-run</div><div>Over-sail</div></div>				Drawing No.		SK09		Notes:		Revision
								1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.		1



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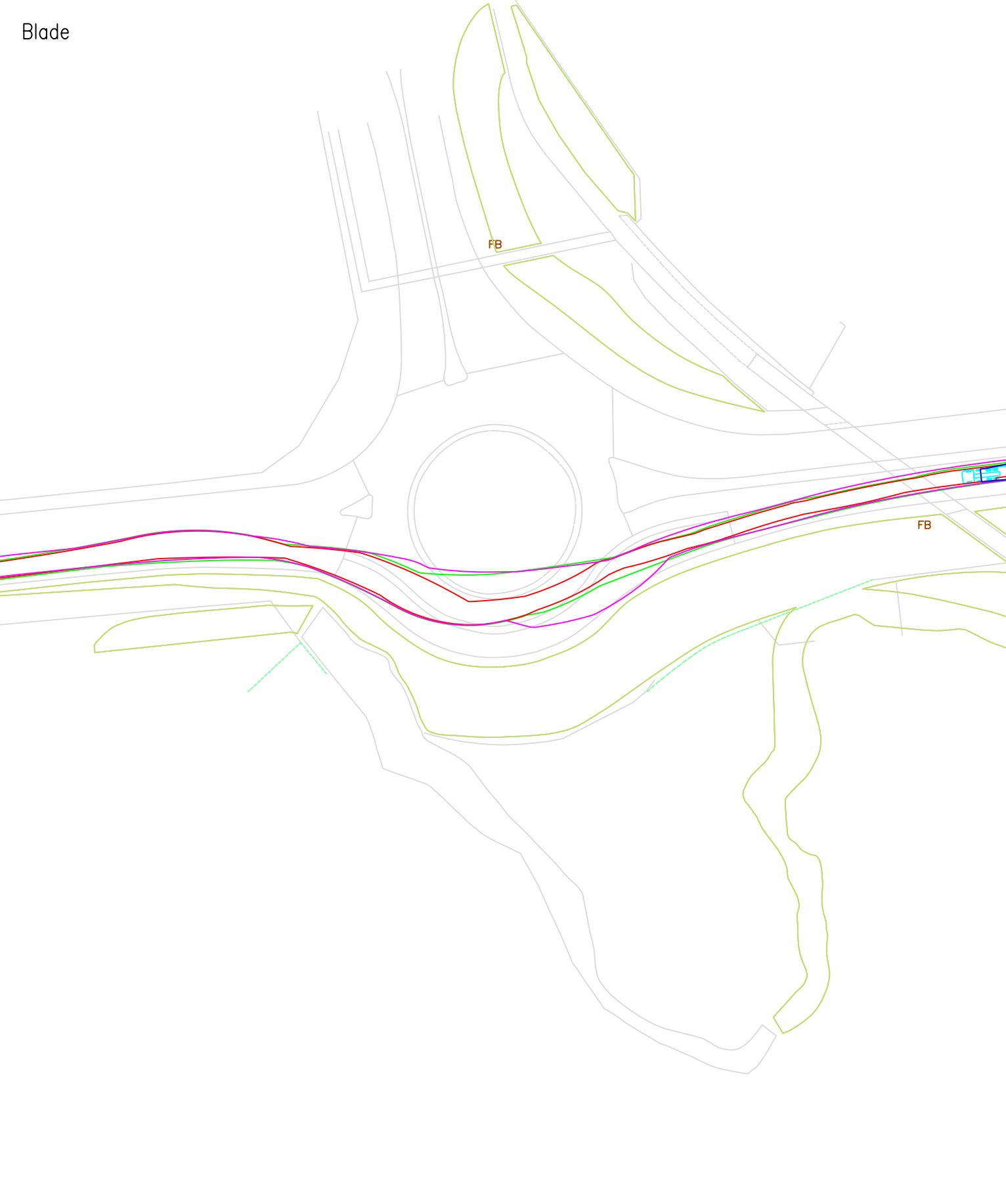
<div><div>Pell Frischmann</div><div>93 GEORGE STREET, EDINBURGH, EH2 3ES</div><div>Tel: +44 (0)131 240 1270</div><div>Email: pfedinburgh@pellfrischmann.com</div><div>www.pellfrischmann.com</div></div>	Project Trecelyn Wind Farm			Name	Date	Scale 1:1000 @ A3	
			Drawn	GB	04/09/23	File No. 230904 Trecelyn Tracking.dwg	
			Designed	TL	04/09/23		
			Checked	GB	04/09/23	Drawing Status Draft	
Client Pennant Walters	Drawing Title Vestas V117 Blade & Tower		Point of Interest		13		
			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 1	
Key <div><div>Wheel SPA</div><div>Body SPA</div><div>Load SPA</div><div>Indicative</div><div>Over-run</div><div>Over-sail</div></div>	SPA Location A4042 Cwmbran Roundabout						



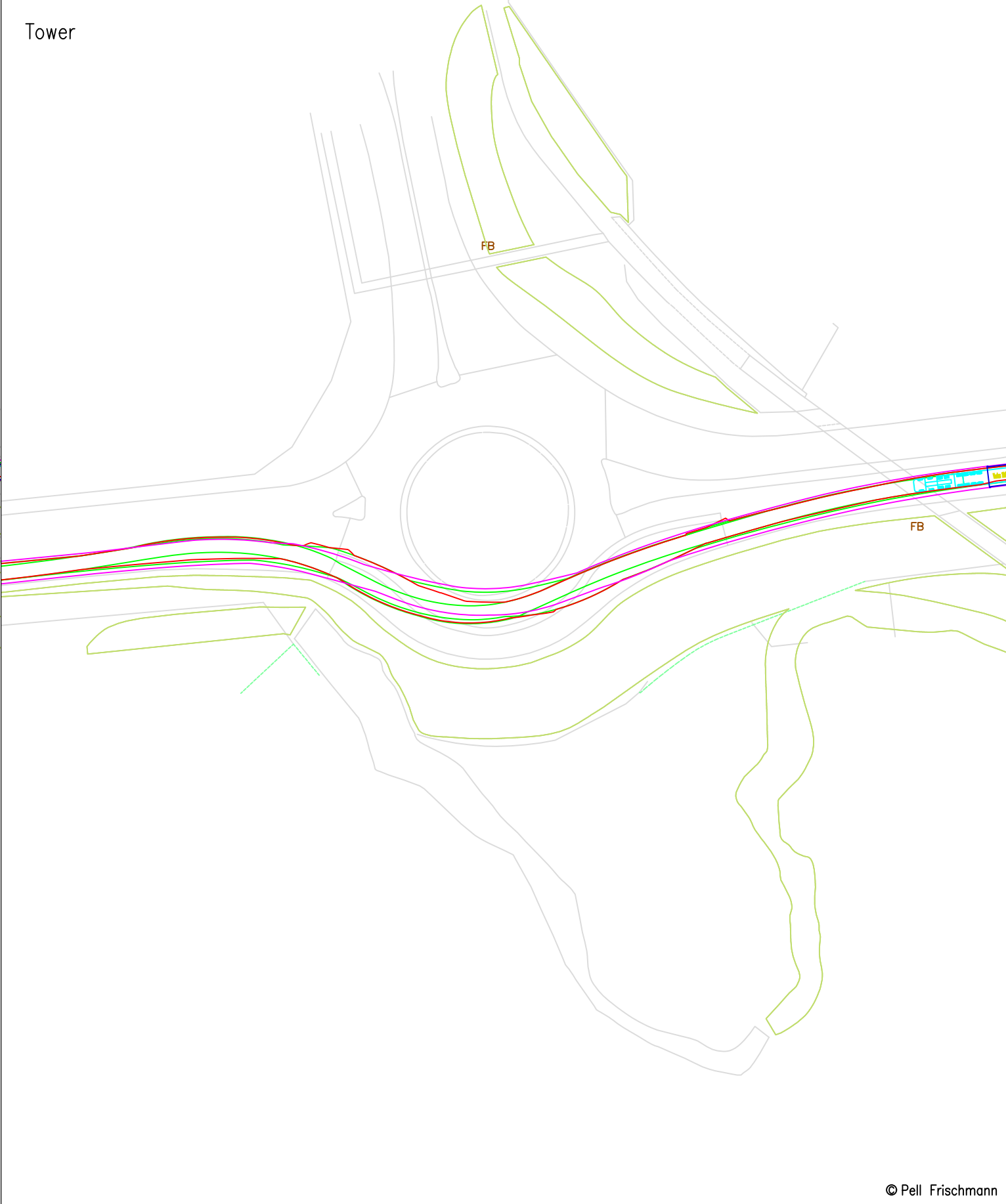
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			Drawn	GB	04/09/23	File No. 230904 Trecelyn Tracking.dwg	
			Designed	TL	04/09/23		
			Checked	GB	04/09/23	Drawing Status Draft	
Client Pennant Walters	Drawing Title Vestas V117 Blade & Tower		Point of Interest		14		
			Drawing No. SK010	Notes: 1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.		Revision 1	
Key <div><div>Wheel SPA</div><div>Body SPA</div><div>Load SPA</div><div>Indicative</div><div>Over-run</div><div>Over-sail</div></div>	SPA Location A4042 Cwmbran Roundabout						

Blade

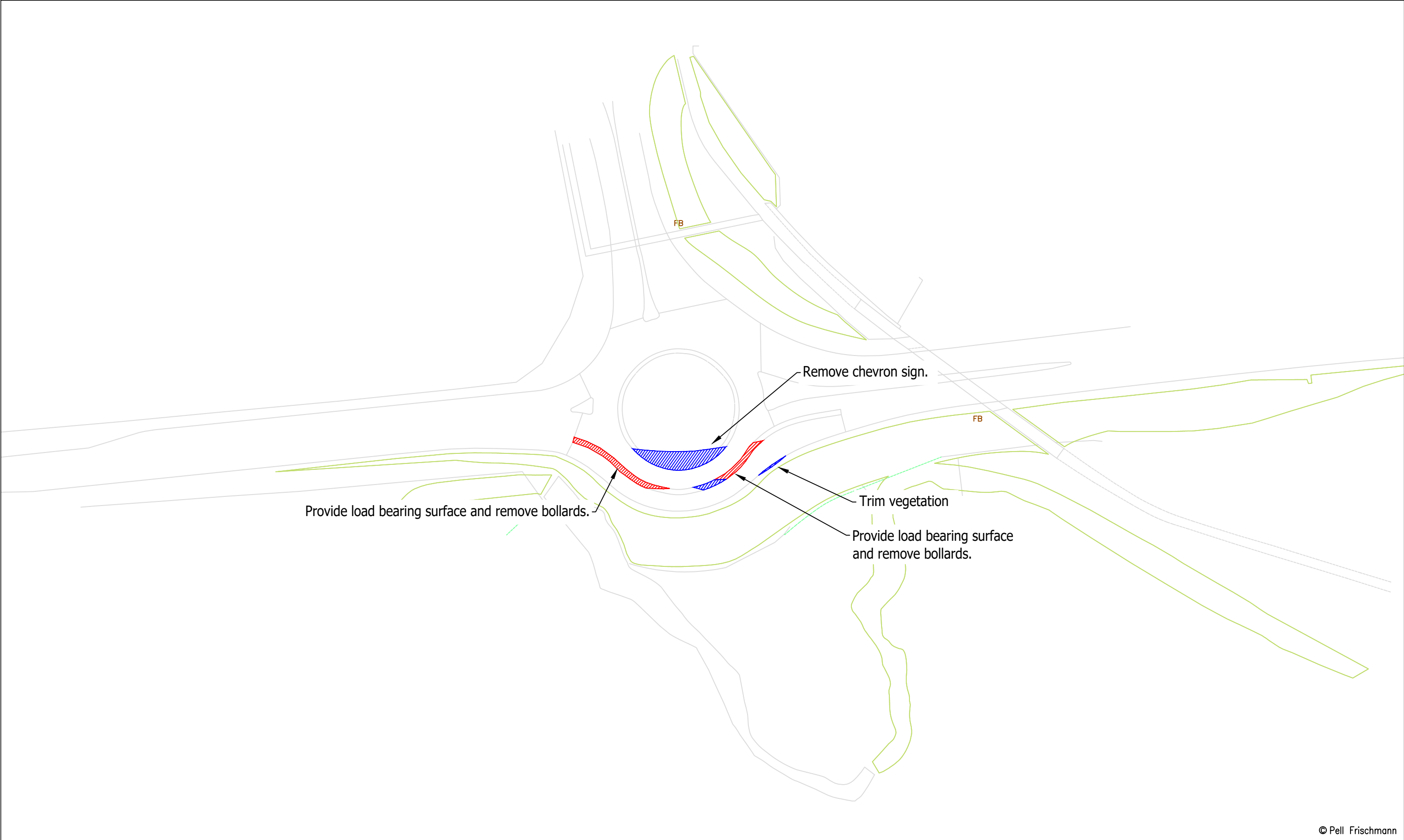


Tower



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				Drawn	GB	04/09/23	File No. 230904 Trecelyn Tracking.dwg	
				Designed	TL	04/09/23		
				Checked	GB	04/09/23	Drawing Status Draft	
Client Pennant Walters		Drawing Title Vestas V117 Blade & Tower		Point of Interest		15		
Key <div><div>Wheel SPA</div><div>Body SPA</div><div>Load SPA</div><div>Indicative</div><div>Over-run</div><div>Over-sail</div></div>				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 1
		SPA Location A472 / A4043 Roundabout						

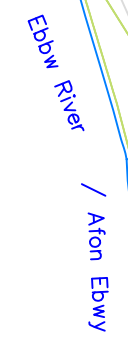


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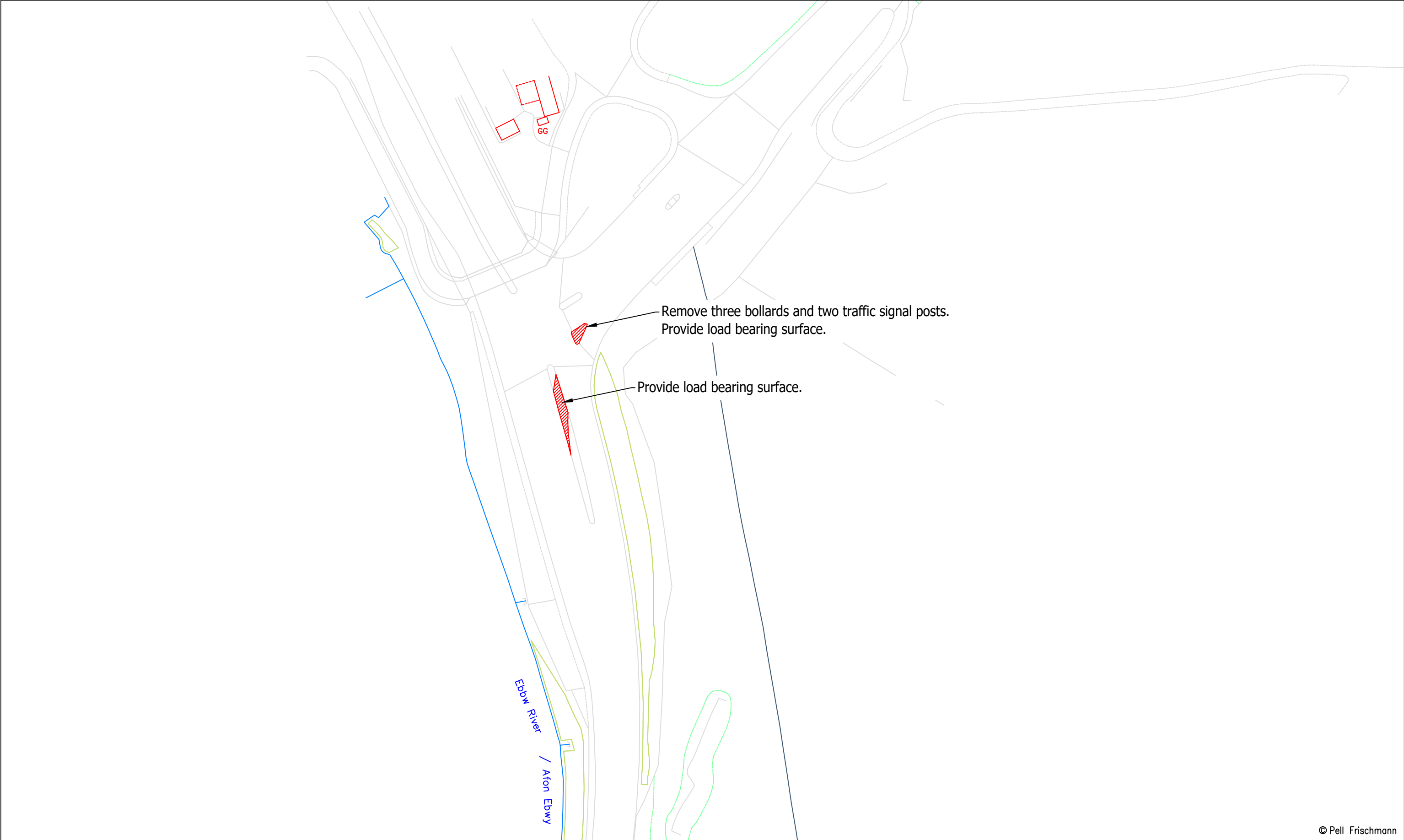
<div><div>Pell Frischmann</div><div>93 GEORGE STREET, EDINBURGH, EH2 3ES</div><div>Tel: +44 (0)131 240 1270</div><div>Email: pfedinburgh@pellfrischmann.com</div><div>www.pellfrischmann.com</div></div>	Project Trecelyn Wind Farm			Name	Date	Scale 1:1000 @ A3	
			Drawn	GB	04/09/23	File No. 230904 Trecelyn Tracking.dwg	
			Designed	TL	04/09/23		
			Checked	GB	04/09/23	Drawing Status Draft	
Client Pennant Walters	Drawing Title Vestas V117 Blade & Tower		Point of Interest		15		
			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 1	
Key <div><div>Wheel SPA</div><div>Body SPA</div><div>Load SPA</div><div>Indicative</div><div>Over-run</div><div>Over-sail</div></div>	SPA Location A472 / A4043 Roundabout						

Blade

Tower



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					Drawn	GB	04/09/23	File No.		230904 Trecelyn Tracking.dwg			
					Designed	TL	04/09/23						
					Checked	GB	04/09/23	Drawing Status		Draft			
Client	Pennant Walters		Drawing Title		Vestas V117 Blade & Tower		Point of Interest		16				
Key	<div><div>Wheel SPA</div><div>Body SPA</div><div>Load SPA</div><div>Indicative</div><div>Over-run</div><div>Over-sail</div></div>	SPA Location		A472 / A467 Junction		Drawing No.		SK12		Notes:		Revision	
										1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.		1	



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				Drawn	GB	04/09/23	1:1000 @ A3		
				Designed	TL	04/09/23	File No.	230904 Trecelyn Tracking.dwg	
				Checked	GB	04/09/23	Drawing Status	Draft	
Client	Pennant Walters	Drawing Title	Vestas V117 Blade & Tower		Point of Interest		16		
Key		SPA Location			A472 / A467 Junction	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.



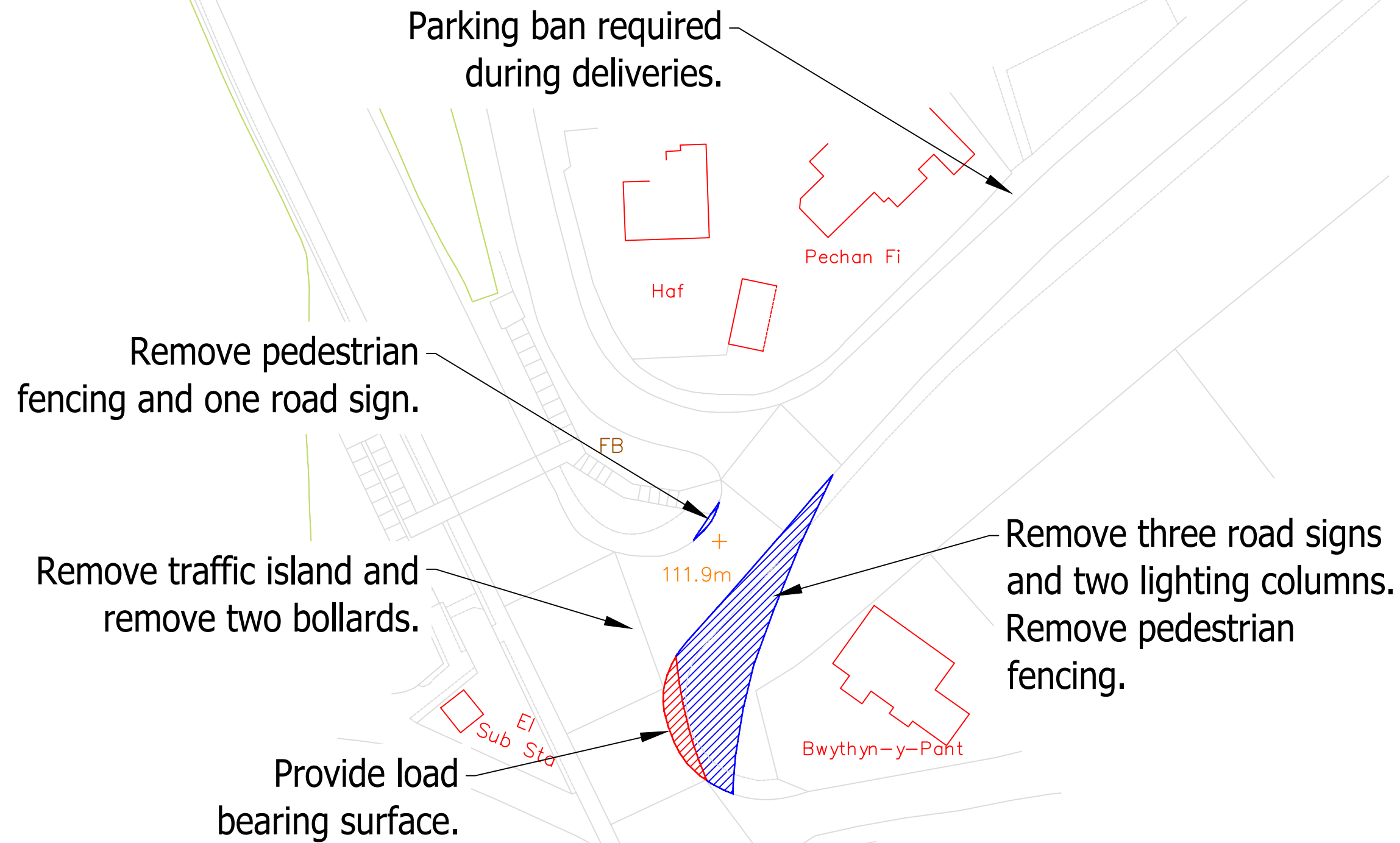
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			Drawn	GB	04/09/23	File No. 230904 Trecelyn Tracking.dwg	
			Designed	TL	04/09/23		
			Checked	GB	04/09/23	Drawing Status Draft	
Client Pennant Walters	Drawing Title Vestas V117 Blade & Tower		Point of Interest		17		
			Drawing No. SK13	Notes: 1. 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 1	
Key <div><div>Wheel SPA</div><div>Body SPA</div><div>Load SPA</div><div>Indicative</div><div>Over-run</div><div>Over-sail</div></div>	SPA Location A467 / A472 Roundabout						



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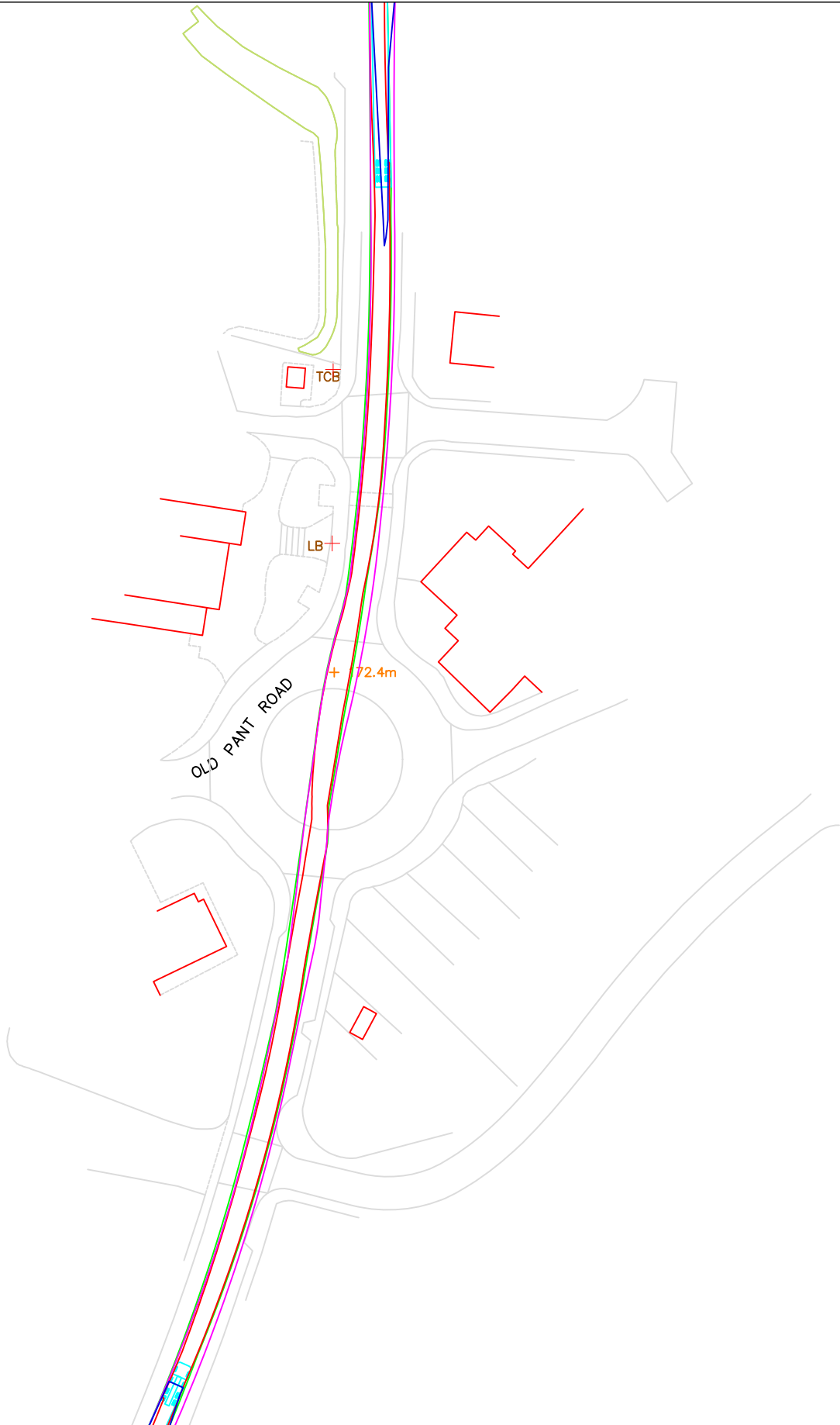
<div><div>Pell Frischmann</div><div>93 GEORGE STREET, EDINBURGH, EH2 3ES</div><div>Tel: +44 (0)131 240 1270</div><div>Email: pfredinburgh@pellfrischmann.com</div><div>www.pellfrischmann.com</div></div>		Project		Trecelyn Wind Farm			Name	Date	Scale		
		Drawing Title		Vestas V117 Blade & Tower		Drawn	GB	04/09/23	1:1000 @ A3		
						Designed	TL	04/09/23	File No. 230904 Trecelyn Tracking.dwg		
						Checked	GB	04/09/23	Drawing Status		
Client		Pennant Walters		SPA Location		Point of Interest		18		Draft	
<div>Key</div> <div><div>Wheel SPA</div><div>Body SPA</div><div>Load SPA</div><div>Indicative</div><div>Over-run</div><div>Over-sail</div></div>		A467 Central Avenue Junction		Drawing No.		Notes:		Revision			
				SK14		1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.		1			



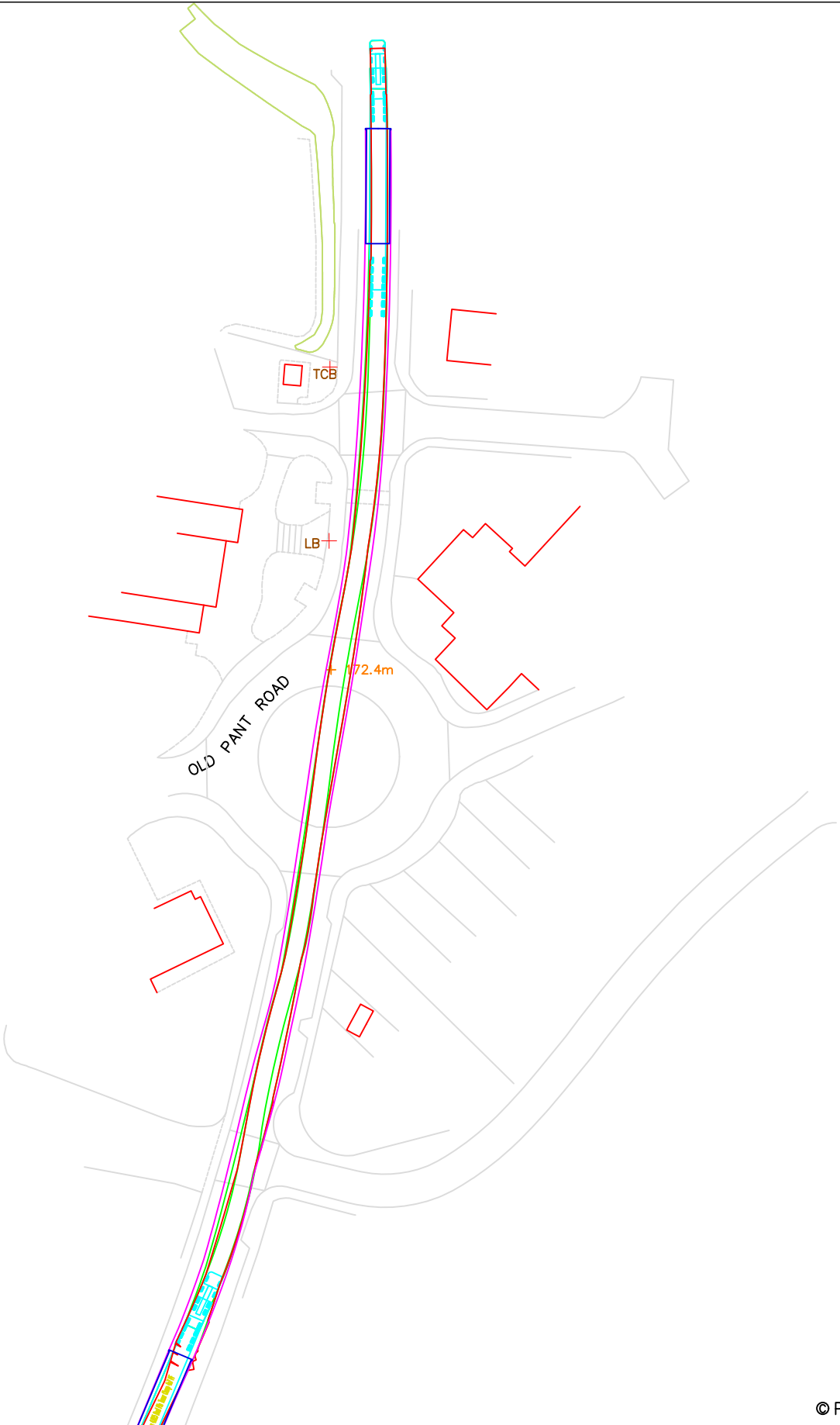
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				Drawn	GB	04/09/23	1:500 @ A3						
				Designed	TL	04/09/23	File No.	230904 Trecelyn Tracking.dwg					
				Checked	GB	04/09/23	Drawing Status						
Client		Pennant Walters		Drawing Title		Vestas V117 Blade & Tower		Point of Interest		18		Draft	
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Blade

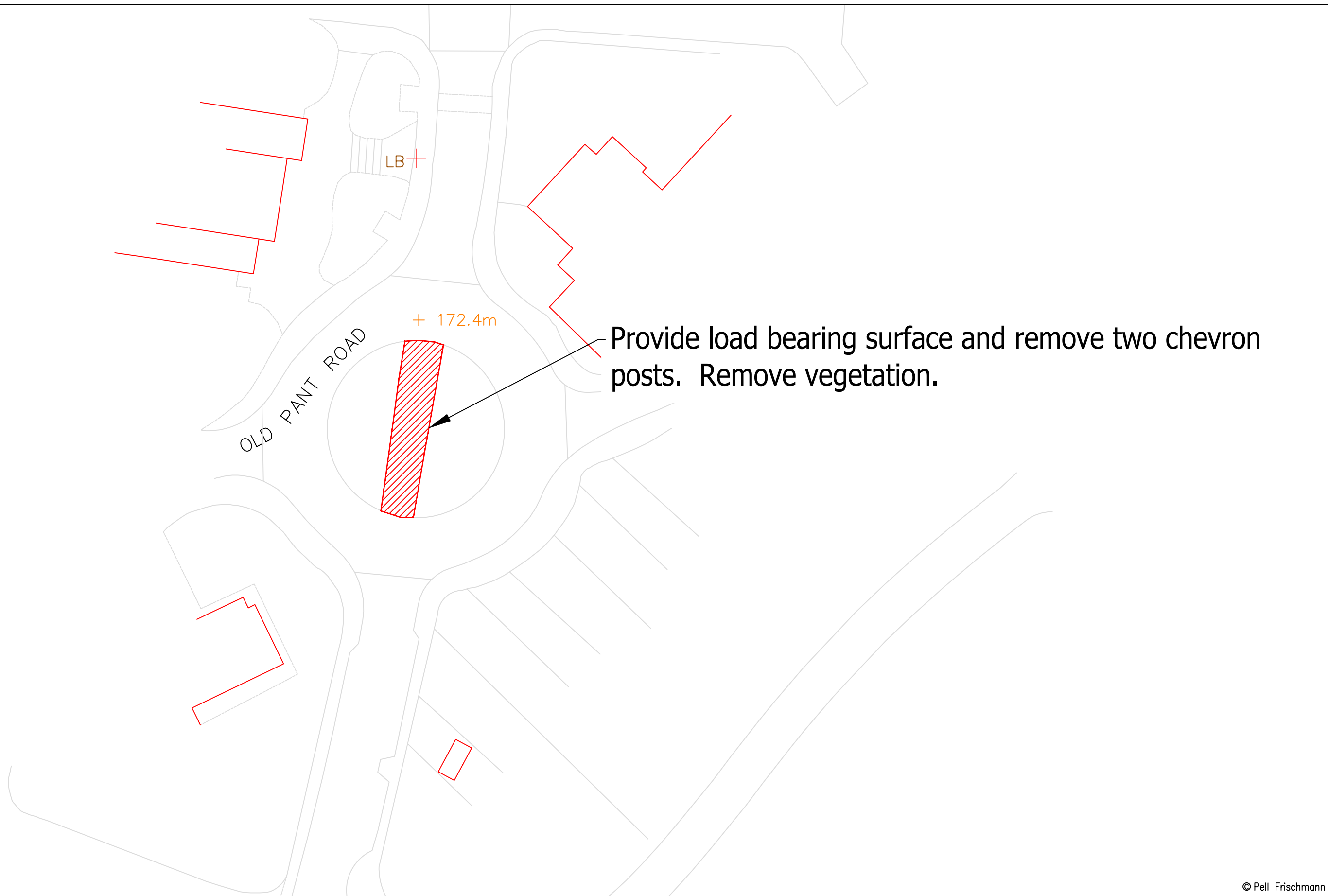


Tower



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									Drawn		GB	04/09/23	File No. 230904 Trecelyn Tracking.dwg			
									Designed		TL	04/09/23				
									Checked		GB	04/09/23	Drawing Status			Draft
Client			Pennant Walters			Drawing Title			Vestas V117 Blade & Tower			Point of Interest				
<div>Key</div> <div><div><div></div>Wheel SPA</div><div><div></div>Body SPA</div><div><div></div>Load SPA</div><div><div></div>Indicative</div><div><div></div>Over-run</div><div><div></div>Over-sail</div></div>			SPA Location			Old Pant Road Roundabout			Drawing No.		SK15		Notes:		Revision	
													1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.		1	



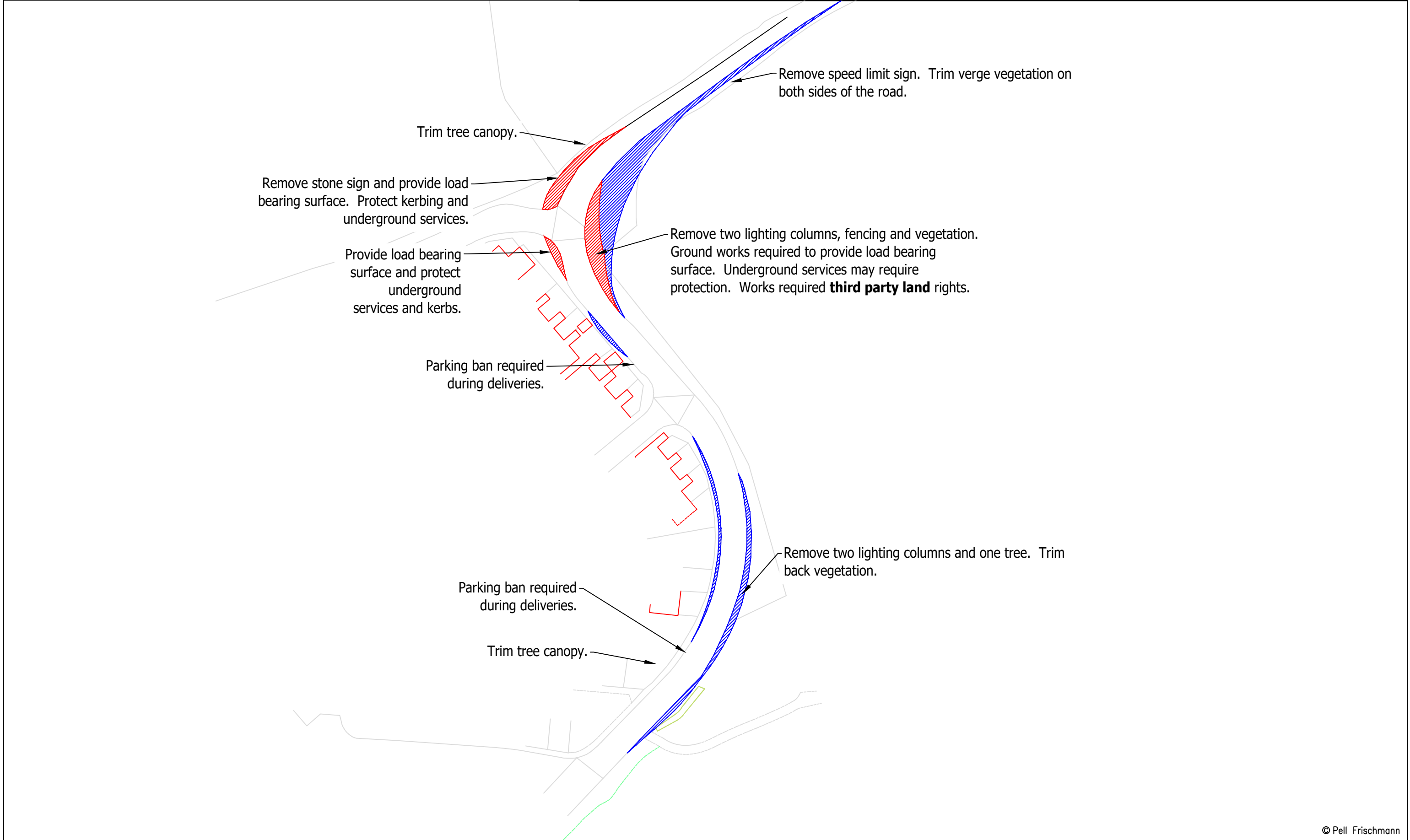
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			Drawn	GB	04/09/23	File No. 230904 Trecelyn Tracking.dwg		
			Designed	TL	04/09/23			
			Checked	GB	04/09/23	Drawing Status Draft		
Client Pennant Walters	Drawing Title Vestas V117 Blade & Tower		Point of Interest		20		Revision 1	
			Drawing No. SK15A	Notes: 1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.				
Key <div><div>Wheel SPA</div><div>Body SPA</div><div>Load SPA</div><div>Indicative</div><div>Over-run</div><div>Over-sail</div></div>	SPA Location Old Pant Road Roundabout							



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		Drawing Title		Vestas V117 Blade & Tower		Drawn	GB	04/09/23	1:1000 @ A3	
						Designed	TL	04/09/23	File No. 230904 Trecelyn Tracking.dwg	
						Checked	GB	04/09/23	Drawing Status	
Client		Pennant Walters		SPA Location		Old Pant Road Bends		Point of Interest		22&23
Key		<div><div>Wheel SPA</div><div>Body SPA</div><div>Load SPA</div><div>Indicative</div><div>Over-run</div><div>Over-sail</div></div>				Drawing No.		Notes:		Revision
						SK16		1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.		1

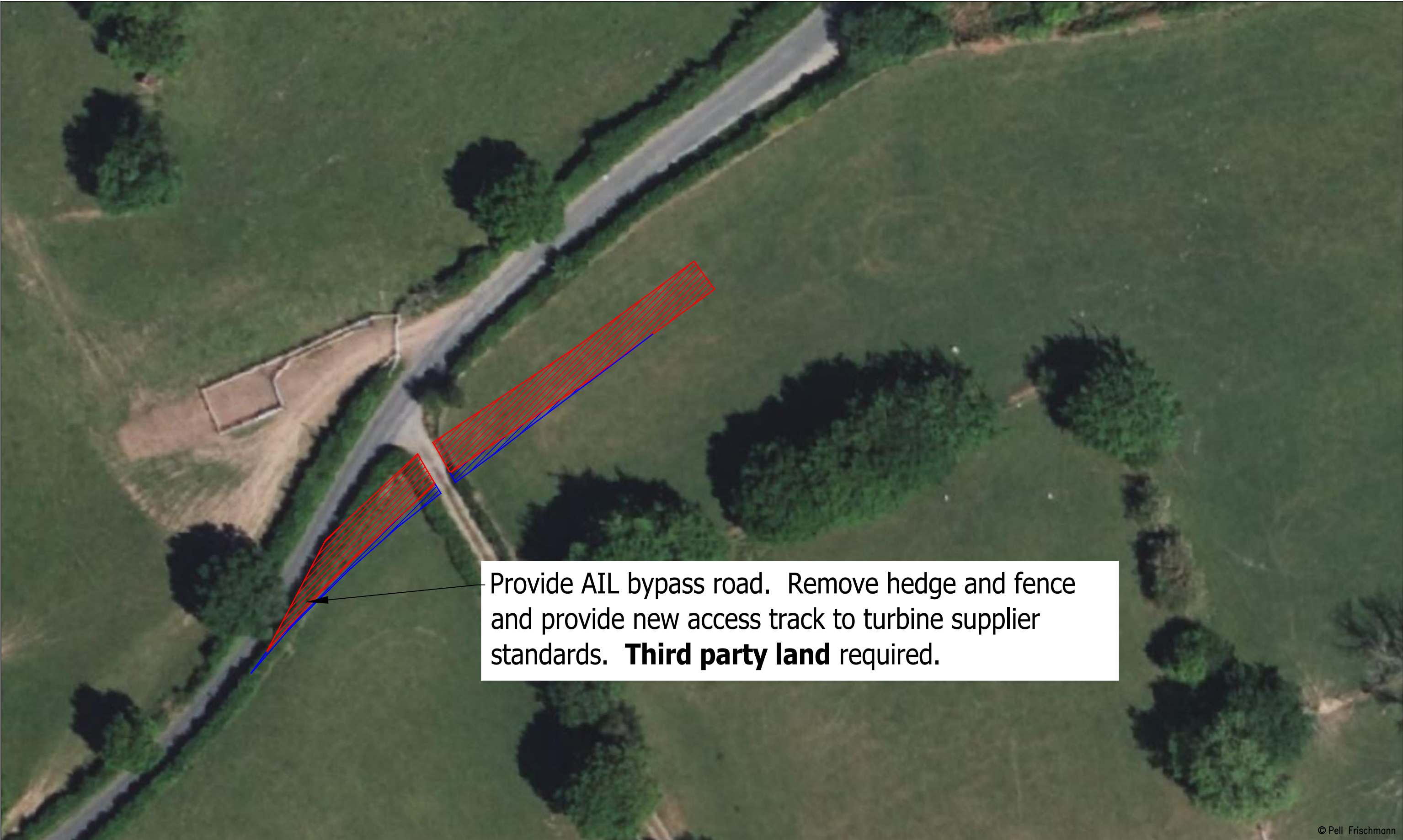


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													<div>Designed</div> <div>TL</div>	<div>04/09/23</div>	<div>File No.</div> <div>230904 Trecelyn Tracking.dwg</div>			
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<div>Client</div> <div>Pennant Walters</div>						<div>Drawing Title</div> <div>Vestas V117 Blade & Tower</div>						<div>Point of Interest</div> <div>22&23</div>						
<div>Key</div> <div><div>Wheel SPA</div><div>Body SPA</div><div>Load SPA</div><div>Indicative</div><div>Over-run</div><div>Over-sail</div></div>						<div>SPA Location</div> <div>Old Pant Road Bends</div>						<div>Drawing No.</div> <div>SK16A</div>	<div>Notes:</div> <div>1. All mitigation is subject to confirmation through a test run.</div> <div>2. This is not a construction drawing and is intended for illustration purposes only.</div>					<div>Revision</div> <div>1</div>



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					Drawn	GB	04/09/23	1:500 @ A3		
					Designed	TL	04/09/23	File No. 230904 Trecelyn Tracking.dwg		
					Checked	GB	04/09/23	Drawing Status		
Client	Pennant Walters		Drawing Title		Point of Interest		25		Draft	
<div>Key</div> <div><div>Wheel SPA</div><div>Body SPA</div><div>Load SPA</div><div>Indicative</div><div>Over-run</div><div>Over-sail</div></div>	SPA Location		Track Diversion		Drawing No.		Notes:		Revision	
					SK17		1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.		1	



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			Drawn	GB	04/09/23	File No. 230904 Trecelyn Tracking.dwg	
			Designed	TL	04/09/23		
			Checked	GB	04/09/23	Drawing Status Draft	
Client Pennant Walters	Drawing Title Vestas V117 Blade & Tower		Point of Interest		25		
			Drawing No. SK17A	Notes: 1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.		Revision 1	
Key	<div><div></div>Wheel SPA</div>	<div><div></div>Body SPA</div>	<div><div></div>Load SPA</div>	<div><div></div>Indicative</div>	<div><div></div>Over-run</div>	<div><div></div>Over-sail</div>	<div>Track Diverge</div>

Blade

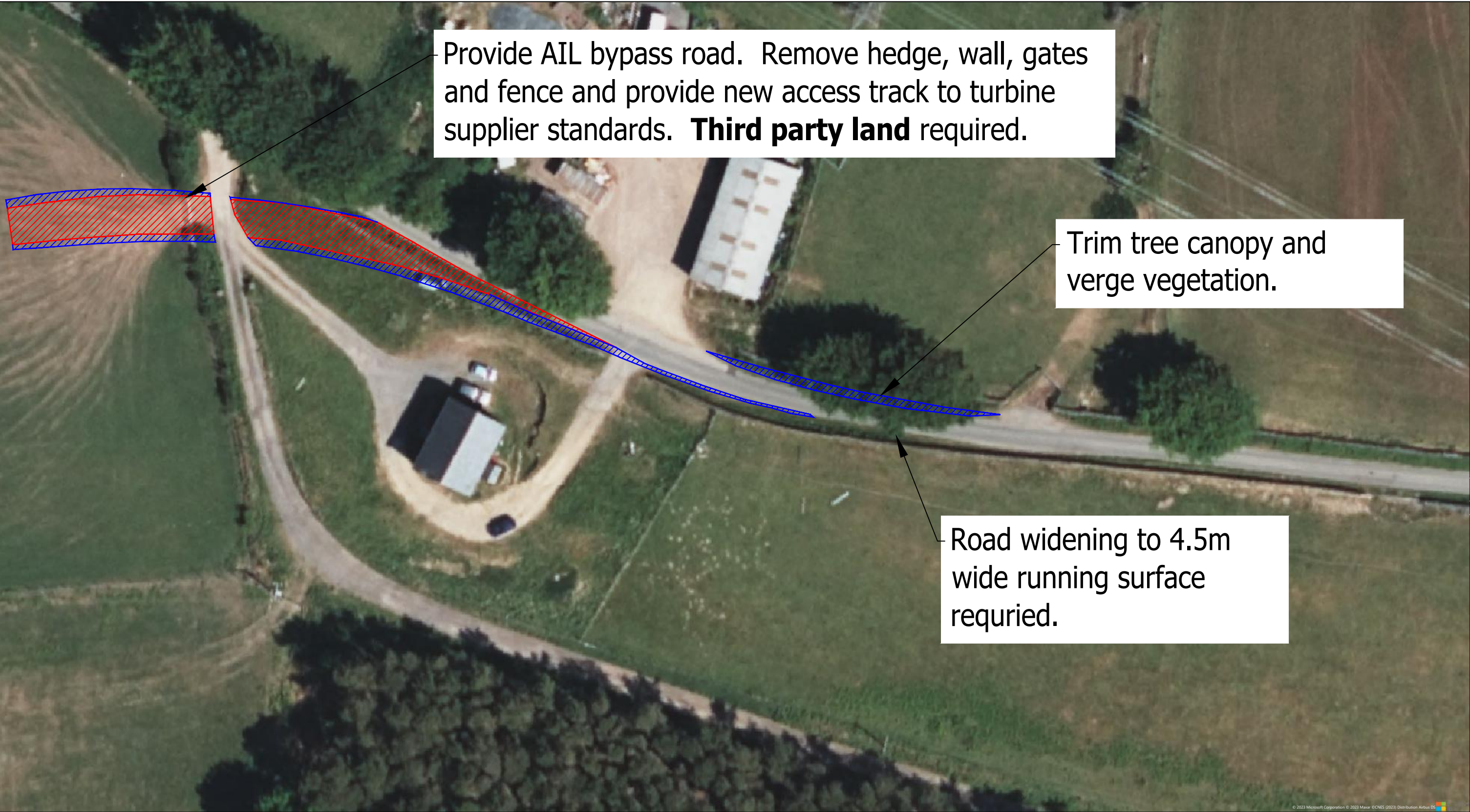


Tower

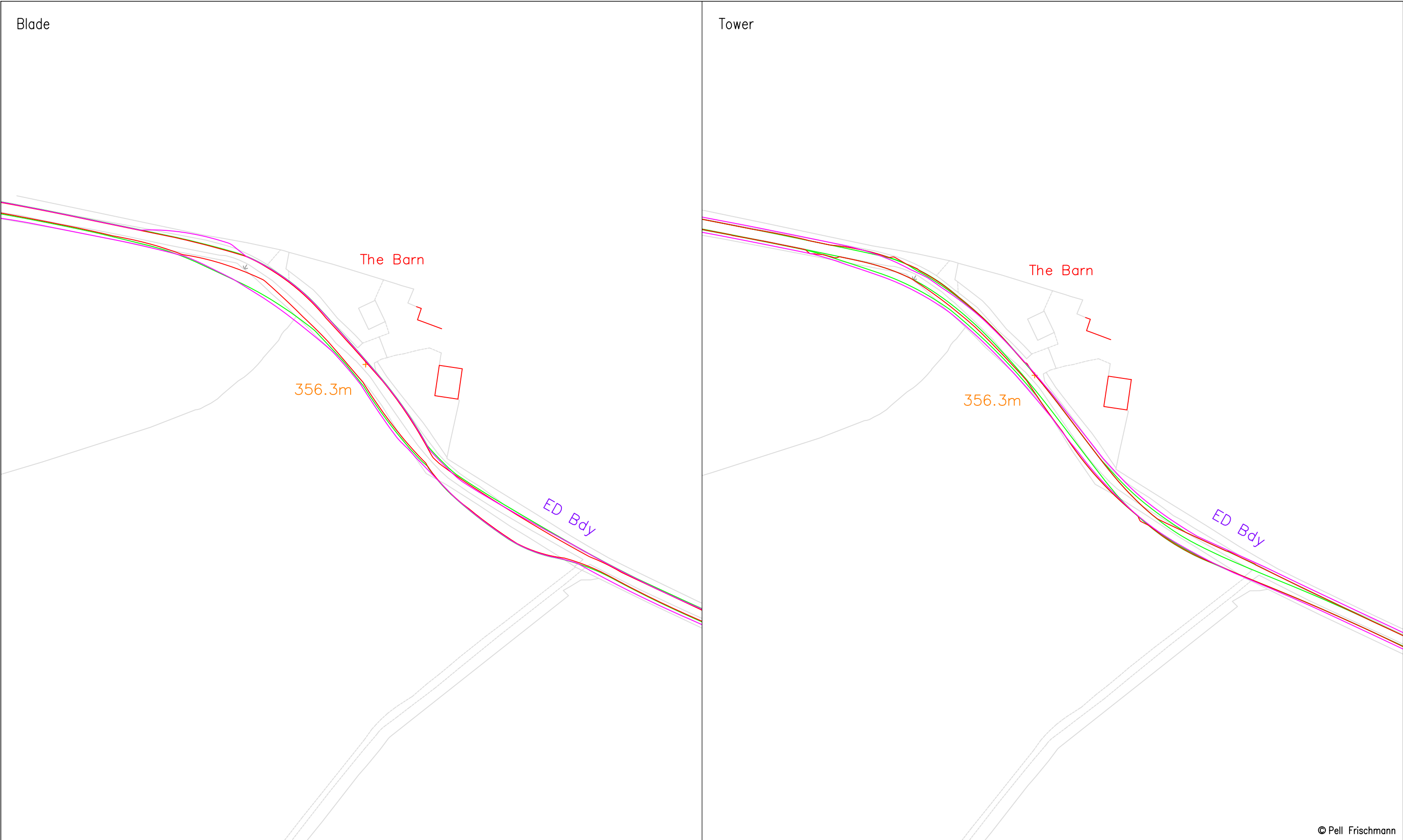


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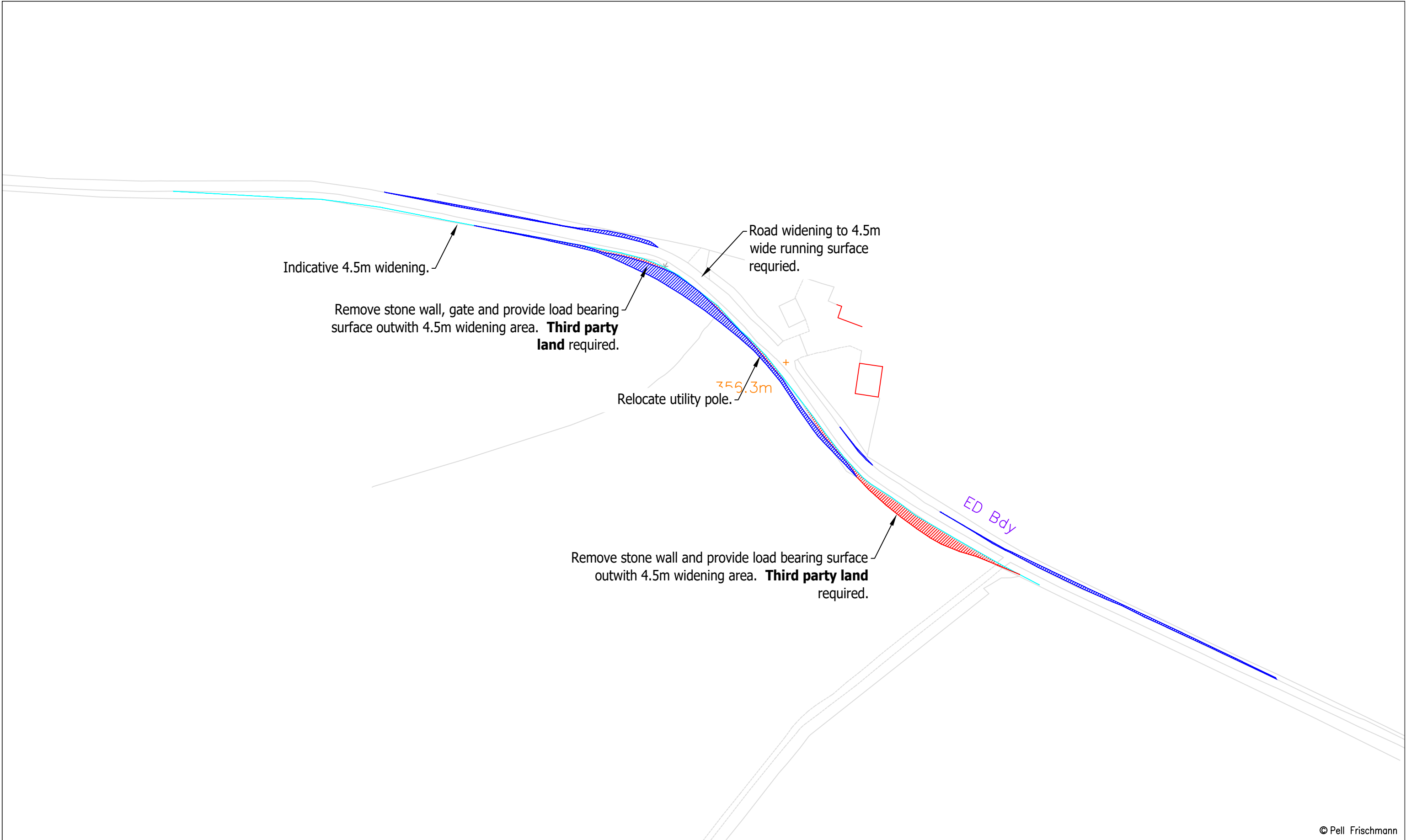
<div><div>Pell Frischmann</div><div>93 GEORGE STREET, EDINBURGH, EH2 3ES</div><div>Tel: +44 (0)131 240 1270</div><div>Email: pfedinburgh@pellfrischmann.com</div><div>www.pellfrischmann.com</div></div>		Project Trecelyn Wind Farm			Name	Date	Scale Custom @ A3	
				Drawn	GB	04/09/23	File No. 230904 Trecelyn Tracking.dwg	
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				Checked	GB	04/09/23		
Client Pennant Walters		Drawing Title Vestas V117 Blade & Tower		Point of Interest		26		
<div>Key</div> <div><div></div>Wheel SPA</div> <div><div></div>Body SPA</div> <div><div></div>Load SPA</div> <div><div></div>Indicative</div> <div><div></div>Over-run</div> <div><div></div>Over-sail</div>		SPA Location Track Diversion Merge		Drawing No. SK18		Notes: 1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.		Revision 1



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				Drawn	GB	04/09/23	File No. 230904 Trecelyn Tracking.dwg	
				Designed	TL	04/09/23		
				Checked	GB	04/09/23	Drawing Status Draft	
Client Pennant Walters		Drawing Title Vestas V117 Blade & Tower		Point of Interest		26		
<div>Key</div> <div><div>Wheel SPA</div><div>Body SPA</div><div>Load SPA</div><div>Indicative</div><div>Over-run</div><div>Over-sail</div></div>				Drawing No. SK18A		Notes: 1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.		Revision 1
		SPA Location Track Diversion Merge						



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				Drawn	GB	04/09/23	1:1000 @ A3		
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				Checked	GB	04/09/23	Drawing Status		
Client	Pennant Walters	Drawing Title	Vestas V117 Blade & Tower		Point of Interest		28	Draft	
Key	<div><div></div>Wheel SPA</div> <div><div></div>Body SPA</div> <div><div></div>Load SPA</div> <div><div></div>Indicative</div> <div><div></div>Over-run</div> <div><div></div>Over-sail</div>	SPA Location			Unclassified Road Bend	Drawing No.	SK19	Notes:	Revision
						1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.		1	



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				Drawn	GB	04/09/23	1:1000 @ A3		
				Designed	TL	04/09/23	File No. 230904 Trecelyn Tracking.dwg		
				Checked	GB	04/09/23	Drawing Status		
Client	Pennant Walters	Drawing Title	Vestas V117 Blade & Tower		Point of Interest		28	Draft	
Key <div><div><div></div>Wheel SPA</div><div><div></div>Body SPA</div><div><div></div>Load SPA</div><div><div></div>Indicative</div><div><div></div>Over-run</div><div><div></div>Over-sail</div></div>	SPA Location	Unclassified Road Bend		Drawing No.	Notes:			Revision	
				SK19A	1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.			1	



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			Drawn	GB	04/09/23	File No. 230904 Trecelyn Tracking.dwg		
			Designed	TL	04/09/23			
			Checked	GB	04/09/23	Drawing Status Draft		
Client Pennant Walters		Drawing Title Vestas V117 Blade & Tower		Point of Interest 29				
<div>Key</div> <div><div><div></div>Wheel SPA</div><div><div></div>Body SPA</div><div><div></div>Load SPA</div><div><div></div>Indicative</div><div><div></div>Over-run</div><div><div></div>Over-sail</div></div>	SPA Location Unclassified Road Bend & Northern Access		Drawing No. SK20		Notes: 1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.		Revision 1	



Road widening to 4.5m wide running surface requiried.

Remove gates and post. Reinforcement of cattle grid potentially required. **Third party rights** potentially required.

Provide load bearing surface. **Third party land** rights required.

Road widening to 4.5m wide running surface requiried.

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			Drawn	GB	04/09/23	1:500 @ A3		
			Designed	TL	04/09/23	File No.	230904 Trecelyn Tracking.dwg	
			Checked	GB	04/09/23	Drawing Status		
Client	Pennant Walters	Drawing Title	Vestas V117 Blade & Tower		Point of Interest		29	Draft
<div>Key</div> <div><div><div></div>Wheel SPA</div><div><div></div>Body SPA</div><div><div></div>Load SPA</div><div><div></div>Indicative</div><div><div></div>Over-run</div><div><div></div>Over-sail</div></div>		SPA Location	Unclassified Road Bend& Northern Access		Drawing No.	Notes:		Revision
				SK20A	1. All mitigation is subject to confirmation through a test run. 2. This is not a construction drawing and is intended for illustration purposes only.		1	

Appendix B Swept Path Assessments

Appendix C ESDAL Consultee Responses

