Environmental Impact Assessment Report

Teindland Wind Farm

Volume 3

TA A11.1: Abnormal Loads Route Assessment

Erratum issued to provide missing information in the hard copies of the Teindland Wind Farm application documents.

Document prepared by Envams Ltd for: Teindland Wind Farm Ltd

July 2025

This document provides TA A11.1: Abnormal Loads Route Assessment, which had erroneously not been included in the original hard copies of the Teindland Wind Farm application documents.



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April 2025



Pell Frischmann

Teindland Wind Farm

Abnormal Indivisible Load Route Survey

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1 Introduction

1.1 Purpose of the Report

Pell Frischmann Limited (PF) has been commissioned by European Energy UK Limited (European Energy) to undertake a survey of the approved delivery route for wind turbine Abnormal Indivisible Loads (AIL) associated with the construction and development of Teindland Wind Farm, located to the southeast of Elgin, Morayshire.

This Route Survey Report (RSR) has been prepared to help inform European Energy of the likely issues associated with the development of the site with regards to off-site transport and access for AIL traffic. The report identifies the key issues associated with AIL deliveries for the proposed development and notes that remedial works, either in form of physical works or as traffic management interventions, would be required to accommodate the predicted loads.

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The detailed assessment and subsequent designs of any remedial works are beyond the agreed scope of works between PF and European Energy 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 meets with their satisfaction. The turbine supplier will be responsible for ensuring that the finalised proposals meet with the appropriate levels of health and safety consideration for all road users and in accordance with the relevant legislation at the time of delivery.

2 Site Background

2.1 Site Location

The development site is located to the southeast of Elgin, Morayshire. Figure 2-1 illustrates an outline of the general site location.

Figure 2-1: Site Location Plan



2.2 Candidate Turbine

European Energy have indicated that they wish to consider the worst-case components from a Nordex N175 turbine. The details of the components have been provided by Nordex and are outlined in Table 2-1 below.

Table 2-1: Turbine Size Summary

Component	Length (m)	Width (m)	Height / Min Diameter (m)	Weight (t)
Nordex N175 Blade	85.122	4.490	3.800	28.771
Worst-case Tower	30.520	4.800	4.793	c.85.000

2.3 Proposed Delivery Equipment

To provide a robust assessment scenario based upon the known issues along the access route, it has been assumed that all blades would be carried on a dolly trailer to reduce the need for mitigation in constrained sections of the route. A blade lifting trailer will be required to navigate the town of Nairn, particularly the A96 / King Street / Marine Road roundabout in central Nairn which is highly constrained.

The lifting trailer has the ability to lift blades up to a maximum angle of 60 degrees, lifting blades over potential constraints and therefore reducing the need for off-site mitigation works on the public road network.

Tower loads 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.

Figures 2-2, 2-3 and 2-4 below illustrate examples of the proposed delivery equipment likely to be used for the Proposed Development.

Figure 2-2: Blade Dolly Trailer



Figure 2-3: Blade Lifter



Figure 2-4: Tower Clamp Trailer



3 Access Route Review

3.1 Ports of Entry

The first proposed Port of Entry (PoE) is Inverness. The port has four quays, of which two are considered suitable for the import of abnormal loads. They are:

- North Longman Quay: This is 150m long and is dredged to 5m below chart datum. The quay has a
 dedicated heavy lift pad that can accommodate lifts of 200 tonnes; and
- Longman Quay: The quay is 340m in length dredged to 5.5m below chart datum.

With regards to storage facilities, the North Longman Quay has approximately 15,000m² of paved hardstanding, whilst the Longman Quay has 16,000m². Additional hardstanding and storage areas are also available near the marina.

Figure 3-1 below shows the harbour.

Figure 3-1: Inverness Harbour



The second proposed PoE is Ardersier Port, an energy transition facility set to open in the second half of 2025. The port features over 650m of quay, with plans to expand to 1,600m. The quayside has a load-bearing capacity of 25 tons per square meter, making it suitable for handling large and heavy wind turbine components. In terms of storage facilities, Ardersier Port offers more than 450 acres of working space, including areas for marshalling, assembly, and storage.

The naturally sheltered harbour ensures safe and efficient operations, even in adverse weather conditions. Its strategic location and extensive infrastructure make it highly suitable for the delivery and handling of wind farm components.

Figure 3-2 below shows a rendition of the finished development.

Figure 3-2: Ardersier Port



3.2 A96 Improvement Works

The Scottish Government plans to dual the A96 between Inverness and Aberdeen, involving the upgrade of 86 miles of single carriageway on the trunk road route. Transport Scotland is promoting the scheme and has advised that the project will:

"... deliver a number of benefits including improved journey time and reliability, delivering economic growth, improved connectivity and reduce the rate and severity of accidents."

Whilst there is no detailed timescale for the entire dualling project, Transport Scotland have advised that the full project will be operational by 2030. Initial stages will be opened in advance of this date, the first being the section between Inverness and Nairn (including the Nairn Bypass).

The A96 Inverness to Nairn (including the Nairn bypass) was considered at inquiry in the Autumn of 2018. The report has been issued to Scottish Ministers; however, there is no indication of when the decision might be issued.

The Transport Scotland project webpage gives 2030 as an anticipated completion date for the entire Inverness to Aberdeen dualling of the A96. The Inverness to Nairn section (including the Nairn bypass) has had draft orders published and is at a stage where there is sufficient certainty for this road improvement project to be considered as a possible alternative delivery route option for the delivery of abnormal loads associated with the Teindland scheme. This would allow access along the dual carriageway and for Nairn town centre to be bypassed.

Access along dual carriageways is easier for abnormal loads and if sections are open, it would be the intention of European Energy to use these, subject to approval from the roads authorities.

In the event that the dualling works are not complete to coincide with deliveries, the existing A96 road network would be used. The route and constraints associated with this option are detailed in the following sections for review. Several of the listed constraints (POI 7-14) would be removed if the dual carriageway section from Inverness to Nairn were complete.

3.3 Proposed Access Routes and Constraints

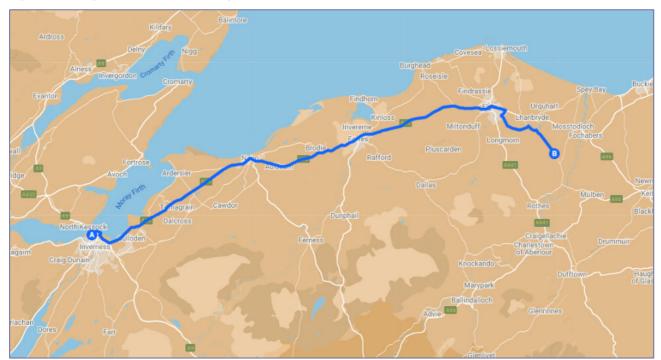
3.3.1 Route Option 1

The first proposed access route to site is as follows:

- Loads would depart from Inverness Harbour then proceed eastbound on Longman Drive and Stadium Road;
- > At the Longman Roundabout, loads would turn left onto the A9 southbound;
- > Loads would depart the A9 at the Raigmore Interchange, taking the first exit onto the A96 eastbound;
- Loads would continue on the A96, proceeding towards Elgin;
- ➤ Within Elgin, loads would proceed on the A96 until its junction with Reiket Lane. At this roundabout, loads would turn right and would proceed southbound on Reiket Lane;
- Loads would exit Reiket Lane onto Linkwood Road heading south;
- ➤ They would follow Linkwood Road east until reaching the B9103 junction, then turn right and head southeast on the B9103;
- Follow the B9013 until reaching the proposed site access point.

The proposed access route is illustrated in Figure 3-3.

Figure 3-3: Proposed Access Route (Option 1)



The constraints noted on the site visit are detailed in Table 3-1. These cover all constraints from the port access gate through to the site access junction. No consideration of the transport issues within the port or within the development site have been undertaken and this includes the design of the site access junction.

Plans illustrating the location of the constraints and a detailed list of POI are provided in Appendix A. Where swept path assessments have been prepared, these are provided in Appendix B.

Table 3-1: Constraint Summary (Option 1)

POI **Key Constraint Details** 1, 2 Loads will depart the harbour from the storage areas then turn left **Harbour Access / Longman Drive Junction** onto Longman Drive and head southeast. Loads will overrun and oversail into third party land to the west of the exit road where the port fence, one lighting column and one road sign should be removed. Verge reprofiling and a load bearing surface are required to accommodate the overrun and oversail. Early discussions with the Port Authorities are required to ensure all stored materials are removed prior to deliveries. Loads will oversail the western footway of Longman Drive after turning. Swept path drawing SK01 is included in Appendix B. 3 **Longman Drive Right Bend 1** Loads will head east on Longman Drive through a right bend, oversailing the southern footway. No further mitigation is required. Swept path drawing SK02 is included in Appendix B. **Longman Drive Right Bend 2** Loads will head south on Longman Drive through a right bend, oversailing both footways. No further mitigation is required. Swept path drawing SK03 is included in Appendix B.

POI **Key Constraint Details** 5 A9 Longman Roundabout Loads will take the first exit at the roundabout heading southeast on the A9. They will oversail the northern footway of the entry arm and eastern verge of the junction where two lighting columns should be removed. Twenty bollards should be removed from the separator island to allow oversail. Swept path drawing SK04 is included in Appendix B. 6 A9 / A96 Raigmore Interchange Loads will depart the A9 and join the A96 at the Raigmore Interchange. Loads will take the first exit then proceed eastbound on the A96. A traffic management plan will be required to allow loads full access to all entry, circulating and exit lanes of the junction. Loads will oversail both verges of the entry arm. The northern pedestrian guardrail should be removed. A load bearing surface should be laid on the central island to allow loads to overrun and oversail. One traffic signal, one set of lit chevron signs and two road signs should be removed. Trees and vegetation should be cleared. Loads will oversail the northern footway of the exit arm. Swept path drawing SK05 is included in Appendix B. 7 A96 Inverness Retail & Business Park Loads will take the first exit at the roundabout and head east. They Roundabout will oversail the central reservation when entering the roundabout. One lighting column should be removed from the northern verge of the entry arm. A load bearing surface should be laid on the central island to allow overrun and oversail. One bollard should be removed from the exit arm splitter island. Swept path drawing SK06 is included in Appendix B. 8 A96 / Barn Church Road Roundabout Loads will take the second exit at the roundabout and head northeast. Two lighting columns should be removed from the northern verge of the entry arm where the verge should be reprofiled and vegetation should be cleared to allow oversail. A load bearing surface should be laid on the central island to allow overrun and oversail. Two sets of lit chevron signs should be removed. Loads will oversail the northern verge of the exit arm.

Swept path drawing SK07 is included in Appendix B.

POI Key Constraint Details

9 A96 Inverness Airport Roundabout



Loads will take the second exit at the roundabout and continue heading northeast.

They will oversail the northern footway of the entry arm then overrun and oversail the central island where a load bearing surface should be laid and two sets of lit chevron signs should be removed.

A load bearing surface should be laid on the exit arm splitter island where one lighting column, one road sign and two bollards should be removed.

Swept path drawing SK08 is included in Appendix B.

10 A96 Tradespark



Loads will proceed ahead on the A96.

It is proposed that a blade transfer point will be located in land to the west of Nairn. This is required as loads will not be able to negotiate the right bend in Nairn with the blade carried in the clamp and dolly trailer. A blade lifting trailer will need to be used. FORL will need to secure this land and a second parcel of land to the east of POI 14 to allow the load to be transferred back into the clamp and dolly trailer.

All overhead utilities and obstructions should be removed where the blade is carried in the raised position.

The lead escorts should hold oncoming traffic back from this location, as wider loads may straddle the centre line of the road.

11 A96 Bollards



Loads will proceed ahead, entering the outskirts of Nairn.

The traffic bollards at two crossing islands should be removed to assist with this manoeuvre at this location.



12 A96 Roundabout, Nairn



Loads will head northeast on the A96 then turn right at the roundabout and head southeast.

It is assumed that blades will be carried using a blade lifting trailer and the blade tip will be elevated to reduce the plan length of the load before they approach the roundabout. The blade will be lowered once loads are past the junction.

A traffic management plan is required for passage through the town. All overhead obstructions should be removed (excluding

POI Key Constraint Details bridges). The transit within the town is estimated as being up to 70



minutes.

The ideal option at this location is the use of the A96 Nairn Bypass, should this be completed in time for deliveries.

On approach to the roundabout loads will drive over a traffic island. A load bearing surface should be laid on the island and one traffic signal and two bollards should be removed from the island.

A load bearing surface should be laid in the western footway of the entry arm to allow loads to overrun and oversail. The raised blade tip will oversail two lighting columns, one road sign, one junction box, a wall and a building (Nairn United Reformed Church). Permission should be sought to oversail the building.

Two bollards should be removed from the roundabout entry arm splitter island. One bollard on the northern splitter island will be oversailed. One bollard should be removed from the exit arm splitter island.

A load bearing surface should be laid on the roundabout island where underground utilities should be protected.

After navigating the roundabout, loads will drive southeast at the A96 / B9090 junction and over a traffic island where a load bearing surface should be laid and two bollards should be removed. Oncoming traffic should be held back prior to the junction to ease access for the abnormal load convoy.

All overhead utilities and obstructions should be removed.

Swept path drawing SK09 is included in Appendix B.

13 A96 Forrest Road Overbridge



It is proposed that loads will stop just in advance of the bridge to allow the blade to lowered to horizontal. It will then pass beneath the bridge before being raised again.

It is recommended that a vertical clearance check is completed under the bridge using a topographical base plan to confirm that the lowered blade is able to pass beneath the structure.

14 A96 Sainsbury's Roundabout, Nairn



Loads will head east at the roundabout taking the second exit to remain on the A96.

Loads will oversail the northern footway of the entry arm on approach.

A load bearing surface should be laid on the roundabout island to allow overrun and oversail. Three sets of lit chevron signs should be removed.

A load bearing surface should be laid on the exit arm splitter island where two bollards and one road sign should be removed to allow loads to overrun and oversail.

Swept path drawing SK10 is included in Appendix B.

POI **Key Constraint Details** 15 A96 East of Auldearn Loads will proceed ahead on the A96. It is assumed that blade loads will be transferred back onto a Dolly and Clamp trailer prior to this location and will traverse the remainder of the route flat. The lead escorts should hold oncoming traffic back at this location, as wider loads may straddle the centre line of the road. 16 **A96 Brodie Castle** Loads will proceed ahead on the A96. The lead escorts should hold oncoming traffic back from this location, as wider loads may straddle the centre line of the road. 17 A96 Greshop Industrial Estate Roundabout Loads will take the second exit at the roundabout. A load bearing surface should be laid on the northern footway of the entry arm to allow loads to overrun and oversail. Loads will drive through the central island which should be lowered to carriageway level. A load bearing surface should be laid. Two sets of chevron signs should be removed. Vegetation should be Two bollards and one road sign should be removed from the exit arm splitter island where a load bearing surface should be laid to allow loads to overrun and oversail. Swept path drawing SK11 is included in Appendix B. 18 A96 / Nairn Road Roundabout Loads will take the second exit at the roundabout. One bollard and one road sign should be removed from the entry arm splitter island where a load bearing surface should be laid to allow loads to overrun and oversail. Loads will drive through the central island which should be lowered to carriageway level. A load bearing surface should be laid. Two sets of chevron signs should be removed.

exit arm.

Two bollards and one road sign should be removed from the exit arm splitter island. Loads will oversail the southern footway of the

Swept path drawing SK12 is included in Appendix B.

POI **Key Constraint Details** 19 A96 Findhorn Roundabout Loads will take the second exit at the roundabout continuing east on the A96. A pedestrian guardrail should be removed from the northern verge of the entry arm. Loads will overrun and oversail the entry and exit arm splitter islands as well as the central island. Load bearing surfaces should be laid. One lit road sign should be removed from the entry arm splitter island. Two sets of chevron signs should be removed from the central island. One road sign and one bollard should be removed from the exit arm splitter island. Swept path drawing SK13 is included in Appendix B. A96 Enterprise Park Roundabout Loads will proceed eastbound at the roundabout and take the second exit for the A96. One lighting column and one road sign should be removed from the northern verge of the entry arm. A load bearing surface should be laid on the entry arm splitter island where two bollards and one road sign should be removed. Two sets of lit chevron signs should be removed from the central island where a load bearing surface should be laid to allow loads to overrun and oversail. Two bollards and one road sign should be removed from the exit arm splitter island where a load bearing surface should be laid. Loads will oversail the northern footway and verge of the exit arm. The lead escort driver will advise the Elgin traffic management team that the convoy has cleared the roundabout and that the street furniture in Elgin should now be removed to facilitate the loads. Swept path drawing SK14 is included in Appendix B. 21 A96 Tree Canopy Loads will proceed ahead on the A96. At this location and throughout the entire route, the tree canopy needs to be trimmed to provide a clear 5m head height. Trimming of the tree canopy can be subject to ecological constraints and it is suggested that early consultation with the relevant road authority is undertaken to agree cutting times and permits. A96 Alves Loads will proceed on the A96 eastbound.



To ease access through this section at Alves, it is suggested that the street furniture on the central island is removed at this location to assist wide loads transiting through the section.

POI **Details Key Constraint** 23 A96 Bends Loads will proceed ahead on the A96. The lead escorts should hold oncoming traffic back from this location as wider loads may straddle the centre line of the road. At this location and throughout the entire route, the tree canopy needs to be trimmed to provide a clear 5m head height. Trimming of the tree canopy can be subject to ecological constraints and it is suggested that early consultation with the relevant road authority is undertaken to agree cutting times and permits. 24 A96 Dr Grey's Hospital Roundabout, Elgin Loads will continue on the A96 within the city and take the first exit at the roundabout. The vehicles will need to undertake a contraflow manoeuvre to pass; therefore, the lead escorts will need to hold oncoming traffic. The escort vehicles should protect pedestrians and hold them back from the junction during manoeuvres. A traffic management plan to minimise delays within Elgin will need to be developed post consent with Moray Council and the Police. A new pedestrian crossing facility has been constructed on the A96 and a copy of the proposed plans has been obtained to enable a swept path assessment to be undertaken. This has been obtained in PDF format and geo-referenced in CAD for use in the assessment. Load bearing surfaces should be laid in the roundabout entry arm splitter islands where two traffic signals, one road sign and three bollards should be removed. One lighting column and three bollard should be removed from the roundabout island and a load bearing surface should be laid to allow loads to overrun and oversail. Vegetation should be cleared from the island. Two road signs and two bollards should be removed from the exit arm splitter island where a load bearing surface should be laid. Loads will oversail the northern footway of the exit arm. Following the passing of the convoy, all street furniture would be immediately replaced by the traffic management contractor. Swept path drawing SK15 is included in Appendix B. A96 / A941 Roundabout, Elgin Loads will turn left at the roundabout and continue on the A96. An appropriate traffic regulation order will be agreed upon with Moray Council and Transport Scotland to suspend on street parking at this location for the duration of convoy movements. Cones to enforce this will be deployed by the developer's traffic management firm daily and will be removed following each convoy. Loads will oversail both footways of the entry arm. The northern and western pedestrian guardrails should be removed. A load bearing surface should be laid on the entry arm splitter island to allow loads to overrun. One road sign and one bollard should be removed. Two bollards and wall sections should be removed from the

roundabout island where trees and vegetation should be cleared

POI	Key Constraint	Details
		and a load bearing surface laid to allow loads to overrun and oversail.
		One road sign and one bollard should be removed from the exit arm splitter island where a load bearing surface should be laid.
		Following the passing of the convoy, all street furniture would be immediately replaced by the traffic management contractor.
		Swept path drawing SK16 is included in Appendix B.
26	A96 / Haugh Road Roundabout	Loads will turn right at the roundabout and continue eastbound on the A96, taking the third exit.
		One road sign and one bollard should be removed from the entry arm splitter island where a load bearing surface should be laid. Two sets of chevron signs and one bollard should be removed from the central island where vegetation should be cleared and a load bearing surface should be laid.
		Load bearing surfaces should be laid on the eastern central reservation where two lit road signs and one bollard should be removed.
		The lead escorts will need to hold back oncoming traffic. Following the passing of the convoy, all street furniture would be immediately replaced by the traffic management contractor.
		Swept path drawing SK17 is included in Appendix B.
27, 28	A96 / A941 Roundabout	Loads will take the second exit at the roundabout, utilising a contraflow manoeuvre. They will require access to the full carriageway width. Escorts must hold back oncoming traffic.
29	A96 / Queen Street Roundabout	Loads will take the first exit at the roundabout, oversailing the entry arm splitter island and northern footways. One bollard should be removed from the splitter island and pedestrian guardrails should be removed from the northern footways.
		Following the passing of the convoy, all street furniture would be immediately replaced by the traffic management contractor.
		Swept path drawing SK18 is included in Appendix B.

POI **Details Key Constraint** 30 Loads will proceed ahead at the junction, taking the second exit for A96 / Pansport Road Roundabout the A96 eastbound. Loads will oversail the northern footways of the entry and exit arms. Load bearing surfaces should be laid on the entry and exit arm splitter islands where two road signs and two bollards should be removed. Three bollards, boulders and vegetation should be removed from the roundabout island where a load bearing surface should be laid. Loads will overrun the central reserve following the roundabout where a load bearing surface should be laid and two lit road signs, two bollards and a pedestrian guardrail should be removed. Swept path drawing SK19 is included in Appendix B. 31 A96 / Esso Garage Roundabout Loads will continue ahead and take the second exit at the junction, utilising a contraflow manoeuvre. Escorts must hold back oncoming traffic. One bollard should be removed from the entry arm splitter island. One lighting column should be removed from the southern verge where vegetation should be trimmed. One bollard should be removed from the exit arm splitter island. Following the passing of the convoy, all street furniture would be immediately replaced by the traffic management contractor. Swept path drawing SK20 is included in Appendix B. 32 A96 / Moycroft Road Roundabout Loads will continue ahead and will take the second exit at the junction, utilising a contraflow manoeuvre. Escorts must hold back oncoming traffic. Two bollards should be removed from the entry arm splitter island and two from the exit splitter island. Two sets of chevron signs should be removed from the roundabout island where vegetation should be trimmed. Loads will oversail southern footway of the exit arm Following the passing of the convoy, all street furniture would be immediately replaced by the traffic management contractor. Swept path drawing SK21 is included in Appendix B. A96 / Reiket Lane Roundabout 33 Loads will turn right at the junction, utilising a contraflow manoeuvre. The escort vehicles should protect pedestrians and hold them back from the junction during manoeuvres. Loads will overrun and oversail the northern footway and verge of the roundabout entry arm. A load bearing surface should be laid. Five lighting columns, two road signs, one pylon sign, a fence, metal poles, concrete blocks and all other obstacles should be removed. Parking in the northern car dealership should be suspended to allow loads access. Third party land required. One road sign and two bollards should be removed from the entry arm splitter island where a load bearing surface should be laid. Two sets of chevron signs should be removed from the central island. Two lighting columns and one road sign should be removed from the western verge of the exit arm.

POI	Key Constraint	Details
		One road sign should be removed from the exit arm splitter island where one bollard will be oversailed. A load bearing surface should be laid in the southern footway after the roundabout to allow loads to overrun and oversail. Underground utilities should be protected. Swept path drawing SK22 is included in Appendix B.
34	Reiket Lane	Loads will proceed southbound on Reiket Lane. A swept path through the D island has been undertaken and indicates that two bollards and one lighting column should be removed to ease access for wide loads. A load bearing surface should be laid. Following the passing of the convoy, all street furniture would be immediately replaced by the traffic management contractor. Swept path drawing SK23 is included in Appendix B.
35	Reiket Lane Rail Bridge	Loads will cross the Inverness – Aberdeen railway at Reiket Lane bridge. Moray Council has expressed concerns regarding the vertical geometry of the bridge. A topographical survey of the structure has been undertaken to inform a vertical review of the structure. In advance of the bridge, loads should raise the trailers using the suspension settings. The blade trailer should increase the load height using the pendal axles and gooseneck rams to improve the clearances under the trailer. The vertical assessment is provided in Appendix C. It indicates that loads can cross the structure without the need for physical works to the structure. Following the bridge crossing, loads will pass a pedestrian crossing island. A swept path through the central island crossing has been undertaken and indicates that two bollards and one lighting column should be removed to ease access for wide loads. Following the passing of the convoy, all street furniture would be immediately replaced by the traffic management contractor. Swept path drawing SK24 is included in Appendix B.
36	Reiket Lane	Loads will proceed ahead on Reiket Lane. The lead escorts should hold oncoming traffic back from this location, as wider loads may straddle the centre line of the road.

POI Key Constraint

Details

37, 38 Reiket Lane / Linkwood Road Junction



Loads will take a left off Reiket Lane into Linkwood Road by utilising the field to the east.

A swept path assessment has been undertaken and indicates that loads will overrun and oversail the crossing island and inside of the following two corners where load bearing surfaces should be laid and two bollards, six lighting columns, one junction box, one gate and several fence sections should be removed. Trees and vegetation should be cleared. **Third party land** is required.

Loads will oversail the southern verge of the following right bend where trees should be trimmed.

Swept path drawing SK25 is included in Appendix B.



39 Linkwood Road – Linkwood Distillery



Loads will continue south east on Linkwood Road.

A swept path assessment has been undertaken and indicates that loads will oversail the southwestern verges where trees should be trimmed. Loads should be raised on their highest suspension setting to oversail bridge parapet. Potential **third party land** is required.

Swept path drawing SK26 is included in Appendix B.

40 Linkwood Road Traffic Island



Loads will continue on Linkwood Road.

Loads will overrun and oversail the following three crossing islands where six bollards and two lighting columns should be removed.

41 Linkwood Road – Sludge Pits



Loads will continue on Linkwood Road.

A swept path assessment has been undertaken and indicates that loads will oversail the northeastern verge where a section of fence should be removed. Trees and vegetation should be cleared. The land should be reprofiled. **Third party land** is required.

Loads will oversail on the western verge where trees and vegetation should be trimmed.

Swept path drawing SK27 is included in Appendix B.

POI **Key Constraint Details** 42, Linkwood Road - Hallowood Loads will continue on Linkwood Road. 43 A swept path assessment has been undertaken and indicates that loads will oversail both verges throughout where on the northern verge trees and vegetation should be cleared. The northern verge should be reprofiled to allow for oversail. A 350mm clearance has been noted to the northern fence, this clearance should be confirmed sufficient during the test run or on a topographical survey base. Loads will oversail one bollard on the southern verge where trees and vegetation should be trimmed. Swept path drawing SK28 is included in Appendix B. Linkwood Road - Mains of Cotts Junction Loads will take a left at the Main of Cotts junction. A swept path assessment has been undertaken and indicates that loads will overrun and oversail the northern verge and oversail the southern verge where on the northern verge a load bearing surface should be laid and two road signs and a section of fence should be removed. Trees and vegetation should be cleared. Third party land is required. Trees and vegetation should be trimmed on the southern verge. Swept path drawing SK29 is included in Appendix B. 45, Linkwood Road / B9103 Junction Loads will take a right onto the B9103 by utilising a northern corner of the field. 46 A swept path assessment has been undertaken and indicates that loads will oversail both verges throughout where trees and vegetation should be trimmed. Loads will overrun and oversail the northern edge of the field where a load bearing surface should be laid in the offline track. Verge should be reprofiled. Fence and gate should be removed. Vegetation should be cleared. Third party land required. Loads will oversail both verges where trees should be trimmed. Swept path drawing SK30 is included in Appendix B.

POI **Key Constraint** 47, B9103 Bends Southwest of Loch na Bo 48, 49. 50

Details

Loads will continue on the B9103.

A swept path assessment has been undertaken and indicates that loads will overrun and oversail both verges of the initial three bends where load bearing surfaces should be laid. The verge should be reprofiled. Two road signs, gate and section of fence should be removed. Trees and vegetation should be cleared. **Third party land** required.

Trees and vegetation should be trimmed on the northern verge of the first left bend and southern verge of the first right bend.

Loads will oversail bollards on the southern verge and northern verge where four bollard and one road sign should be removed. Tress and vegetation should be cleared. **Third party land** required.

Loads will oversail the southern verge of the final bend where one utility pole and fence should be removed. Trees and vegetation should be cleared. Land should be reprofiled to allow oversail. **Third party land** is required.

Swept path drawing SK31 is included in Appendix B.

51 B9103 Burn of Blackhills



Loads will continue on the B9103.

A swept path assessment has been undertaken and indicates that loads will overrun and oversail the western and southwestern verges where a load bearing surface should be laid. Trees should be trimmed. One mirror sign and fence should be removed. Vegetation should be cleared. **Third party land** is required.

Loads will oversail both verges of the final bend where one utility pole should be removed. Trees and vegetation should be cleared. **Third party land** required.

POI Key Constraint Swept path drawing SK32 is included in Appendix B. 52 B9103 Cranloch Loads will continue on the B9103.

A swept path assessment has been undertaken and indicates that loads will oversail the northeastern verge where trees and vegetation should be trimmed and overrun the southwestern verge where a load bearing surface should be laid and the verge should be reprofiled. Vegetation should be cleared. 500mm clearance noted to southern fence, this clearance should be confirmed during the test run or on a topographical survey base. **Third party land** may be required to construct the mitigation.

Swept path drawing SK33 is included in Appendix B.



54,

Loads will continue on the B9103.

It is strongly recommended that a full overhead utility search is carried out along the route to ensure that height clearances are suitable for normal temperature ranges.



Loads will continue on the B9103.

A swept path assessment has been undertaken and indicates that loads will oversail both verges where on the northeastern verge, trees and vegetation should be cleared **Third party land** required.

On the southwestern verge, one utility pole should be removed and trees and vegetation should be trimmed.

Swept path drawing SK34 is included in Appendix B.

POI	Key Constraint	Details
56	B9103 Proposed Site Access	It is proposed that loads would depart the public road into an existing access junction. Load bearing surface to be laid. Access junction and track should be upgraded to turbine manufacturer and local road authority standards for AIL delivery. The ditch should be culverted. Land should be reprofiled. One utility pole, one road sign, fence and gate should be removed. Trees and vegetation should be cleared. Detailed design on a topographical base survey required. Third party land required.
		Swept path drawing SK35 is included in Appendix B.

3.3.2 Route Option 2

The second proposed access route to site is as follows:

- Loads would depart from Ardersier Port and head southeast;
- > Near Blackcastle, loads would turn left to join the A96 heading northeast towards Nairn; then
- > Follow the same route as Option 1 until reaching the site.

The proposed access route is illustrated in Figure 3-4 below.

Figure 3-4: Proposed Access Route (Option 2)

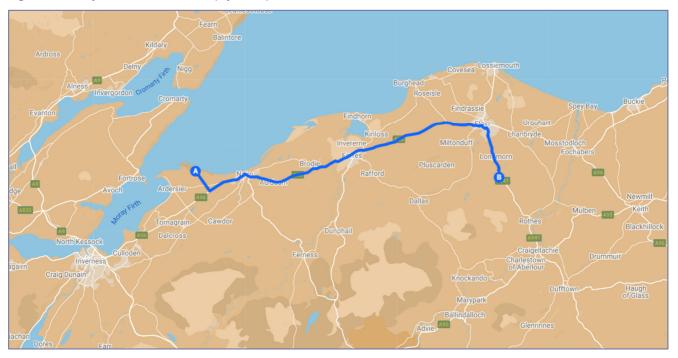


Table 3-2: Constraint Summary (Option 2)

POI Key Constraint Details Ardersier Port Exit 57 Loads will depart the harbour and head southeast. Early discussions with the port authorities are recommended to ensure the feasibility of the manoeuvre. It is assumed that blade loads will be carried out in a blade lifting trailer so that they may navigate the town of Nairn. 58 A96 Junction, Blackcastle Loads will turn left at the junction heading northeast. Three road signs in the eastern verge should be removed. Vegetation should be trimmed. One road sign in the western verge will be oversailed. Trees and vegetation should be trimmed. A land search should be completed to confirm the extent of the available adopted boundary. Swept path drawing SK36 is included in Appendix B.

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 caseloads at each location.

The colours illustrated on the swept paths are:

- Grey / Black Ordnance / Topographical base survey mapping;
- Green Vehicle body outline (body swept path);
- > Red Outline of the tracked path of the wheels (wheel swept path); and
- Magenta Outline of the load tracked path 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, there can be errors in this data source.

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

Where mitigation works are required, the extents of over-run and oversail areas are illustrated on the swept path drawings. Additional land areas to those indicated in the swept path assessment drawings may be required to facilitate the construction of the proposed physical mitigation measures depending on the site conditions and topography. The extent of any additional areas required to construct mitigation works highlighted within this study and the detailed design of said mitigation works is outwith the scope of this study and should be confirmed on detailed topographical survey data.

3.5 Third Party Land

A review of third party land should be undertaken by the client to ensure that no additional land rights are required to enable deliveries or mitigation works. Pell Frischmann accepts no responsibility for the accuracy of land ownership assumptions, all of which should be confirmed across the entire access route by a qualified land agent.

3.6 Weight Review

A review of the structures on the proposed access routes has been undertaken via the ESDAL (Electronic Service Delivery for Abnormal Loads) database. No constraints were identified on the database at this time, using the Highways Agency website www.esdal.com. This, however, does not confirm the suitability or otherwise of the structures and a full review of these structures will be required with the relevant agencies via the contacts in the database, when the candidate turbine has been confirmed. For information, the relevant ESDAL contacts are noted in Table 3-3. Where responses from the ESDAL have been received, these are contained in Appendix D. Where no response has been received, it is assumed that no constraints are in place at this time.

Table 3-3: ESDAL Contacts

Organisation	Email Address
Police Scotland	OSDAbnormalLoadsScotland@scotland.police.uk
Amey (North East Scotland)	abnormal-loadne@amey.co.uk
Network Rail	AbnormalLoadsEnquiries@networkrail.co.uk
Historic Rail Estate	rsgbrb@jacobs.com
Scottish Canals	scabnormal.loads@scottishcanals.co.uk
Highland Council	abnormal.loads@highland.gov.uk
Moray Council	abloads@moray.gov.uk

Organisation	Email Address
Transport Scotland	abnormalloads@transport.gov.scot
Bear North West	NWAbnormalLoad@bearscotland.co.uk

3.7 Road Modifications

Road modifications fall into four main categories, namely:

- Vegetation trimming;
- Street furniture relocations / removals;
- Overrun surfacing; and
- Significant realignment and new structures.

Vegetation trimming can be undertaken under existing road legislation, with a 5m clear head height generally required under the Roads (Scotland) Act. Local authorities and Transport Scotland's agents have powers to require landowners to cut back vegetation overgrowing the adopted road.

Vegetation trimming can be subject to ecological constraints and tree trimming can be restricted to between October and March to avoid breeding bird seasons.

Street furniture modifications can be accommodated by the temporary removal of sign poles, lighting columns etc. This was previously undertaken in Elgin at the junction of South Street and Northfield Terrace and the junction of the A941 and Moss Street for deliveries associated with Rothes II Wind Farm and as such a precedent exists for this type of work.

Should temporary removal not be feasible, it is possible that signs can be relocated out with oversail or overrun areas. The extent of the relocation is a detailed design matter and would be determined in discussion with the road authorities post consent.

It is possible to use socket foundations for road signs, bollards, pedestrian crossings and lighting poles. Foundations such as those produced by NAL can allow quick and easy removal. In this circumstance, a traffic management team would travel ahead of the convoy and remove street furniture immediately before the loads pass. These items could be immediately reinstalled by a trailing traffic management team that follows the convoy. This approach could be adopted within Elgin to help reduce the impact of convoys on pedestrian accessibility.

The provision of overrun surfacing can be achieved by installing temporary load spreading plates or the use of temporary crushed stone or bound surfaces.

The use of spreader plates has been used for number of recent projects, with examples being found at Junction 13 of the M74 to provide a load bearing surface for turbine deliveries beside the trunk road. Plastic or aluminium plates are easy and quick to install and provide protection up to 12 tonnes axle loads.

The exact design of the works required for overrun areas are a detailed design matter and generally undertaken once the final turbine choice has been established, post consent.

The provision of all the works would be controlled through the use of Road Opening Permits or Road Construction Consent (RCC). As such, the detailed design of these measures can be conditioned as part of a wider traffic management plan.

3.8 Summary Issues

The following matters would be addressed post consent and would be undertaken as part of the abnormal load permitting process by the developer or turbine supplier / haulier prior to the first load being transported.

- Should sections of the improved A96 (A96 Nairn Bypass) be operational, these would be reviewed and utilised in the first instance. The alternative option will be to use the existing A96 as detailed in this report or use a full blade lifting trailer;
- A revised review of axle loading on structures along the entire access route with the various road agencies is undertaken immediately prior to the loads being transported once the final turbine has been chosen and in case of last-minute changes to structures;
- A review of clear heights with utility providers and the transport agencies along the route to ensure that there is sufficient space to allow for loads plus sufficient flashover protection (to electrical installations);
- > That any vegetation and tree canopies which may foul loads is trimmed prior to loads moving; and
- That a review of potential roadworks and or closures is undertaken once the delivery schedule is established in draft form.

In addition, it is recommended that the developer also undertakes the following post consent:

- A test run will be completed to confirm the route and review any vertical clearance issues, as is normal for any wind farm project of this scale; and
- > That a road condition survey is undertaken to ascertain the extents of road defects prior to loads commencing to protect the developer and road agencies from damage claims. This would cover a before and after construction survey and would be undertaken with a member of Moray Council in attendance.

4 Summary

4.1 Summary of Access Review

PF has been commissioned by European Energy to prepare a Route Survey Report to examine the issues associated with the transport of AIL turbine components from Inverness Harbour and Ardersier Port through to the development site.

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

The report is presented for consideration of European Energy.

4.2 Further Actions

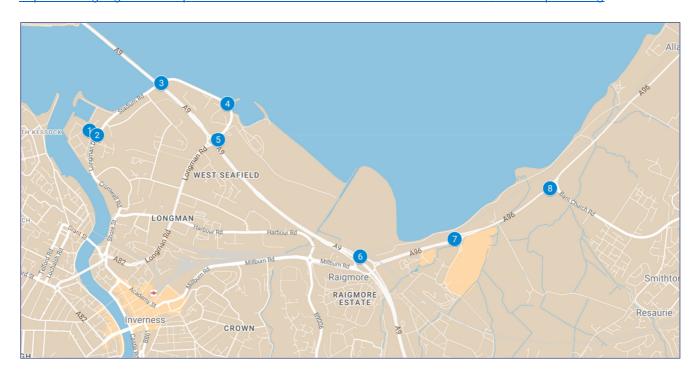
The following actions are recommended to pursue the transport and access issues further:

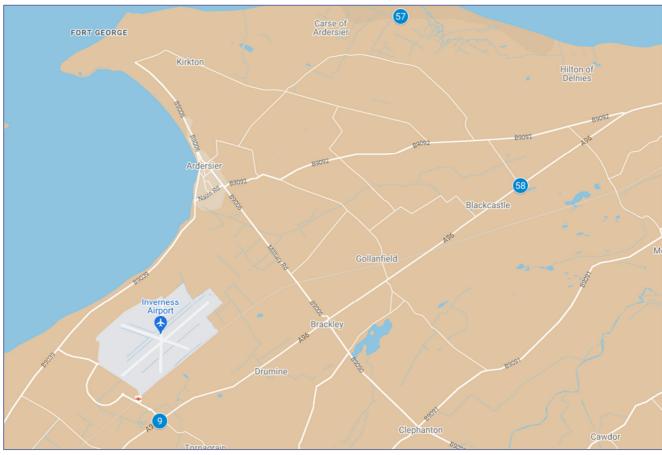
- Prepare detailed mitigation design proposals to help inform the land option / consultee discussions;
- Obtain the necessary statutory licences to enable the mitigation measures; and
- Develop a detailed operational Transport Management Plan to assist in transporting the proposed loads.

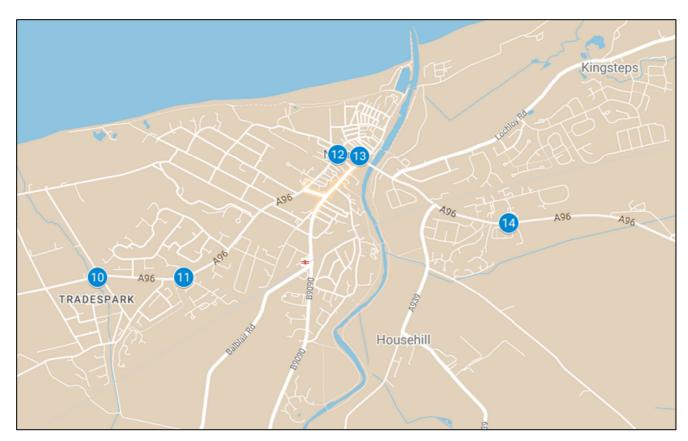
Appendix A Points of Interest

An electronic copy of the POI plans can be found here:

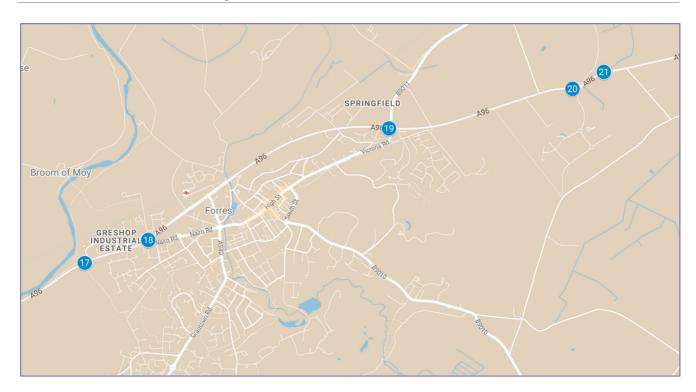
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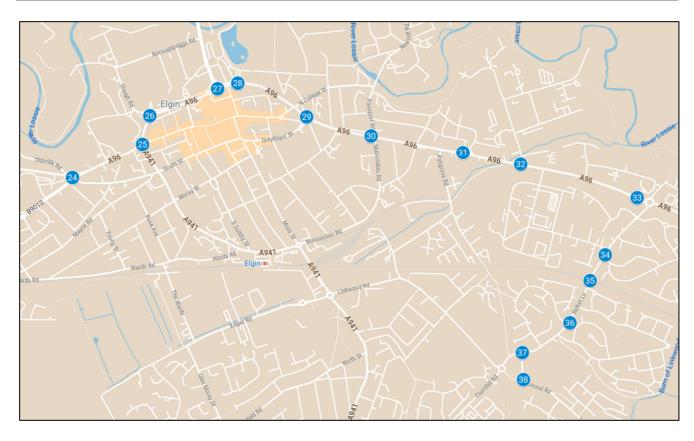


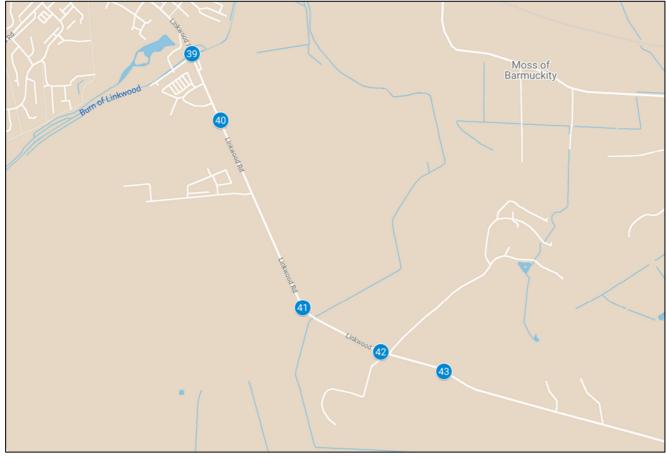








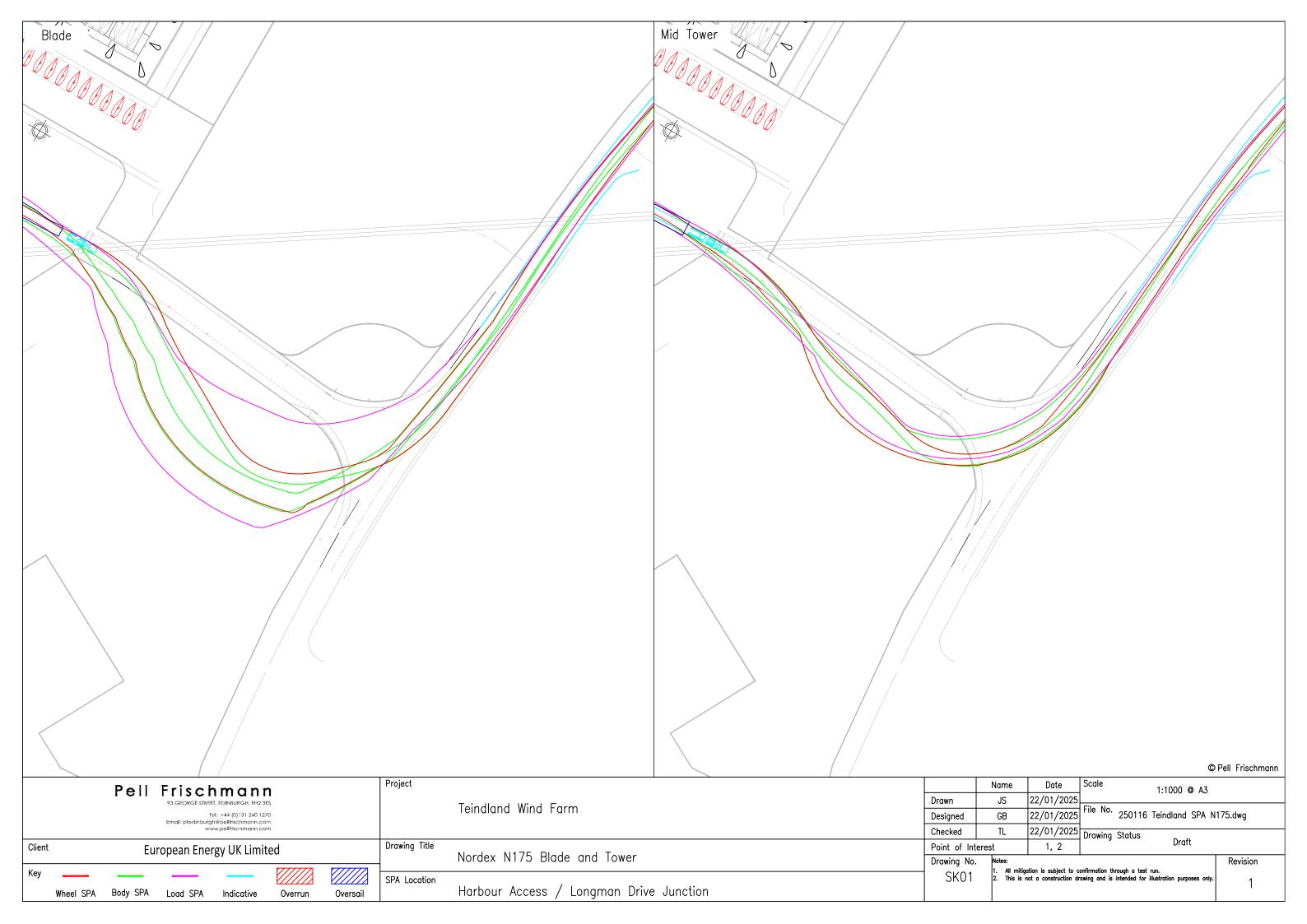


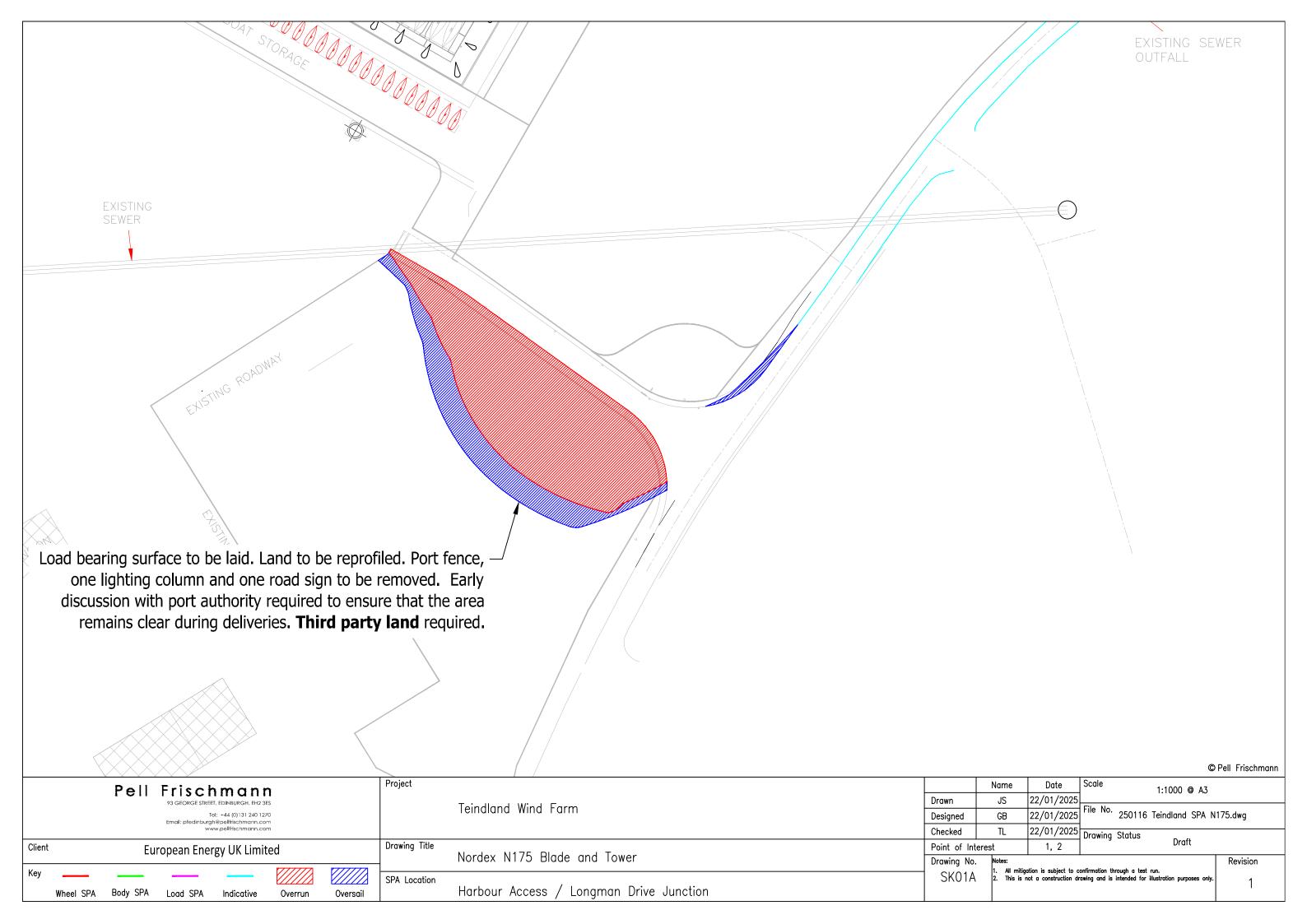


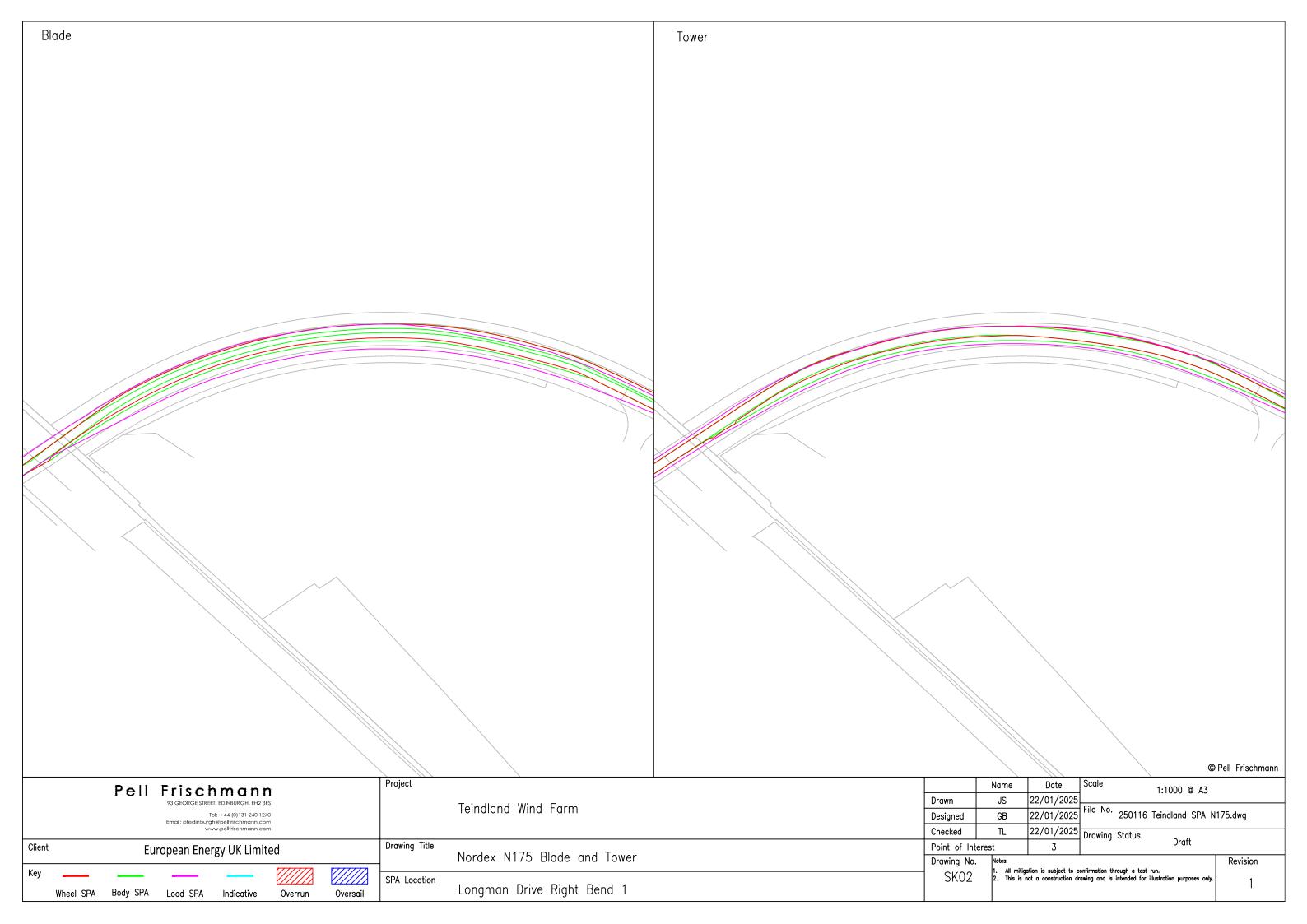


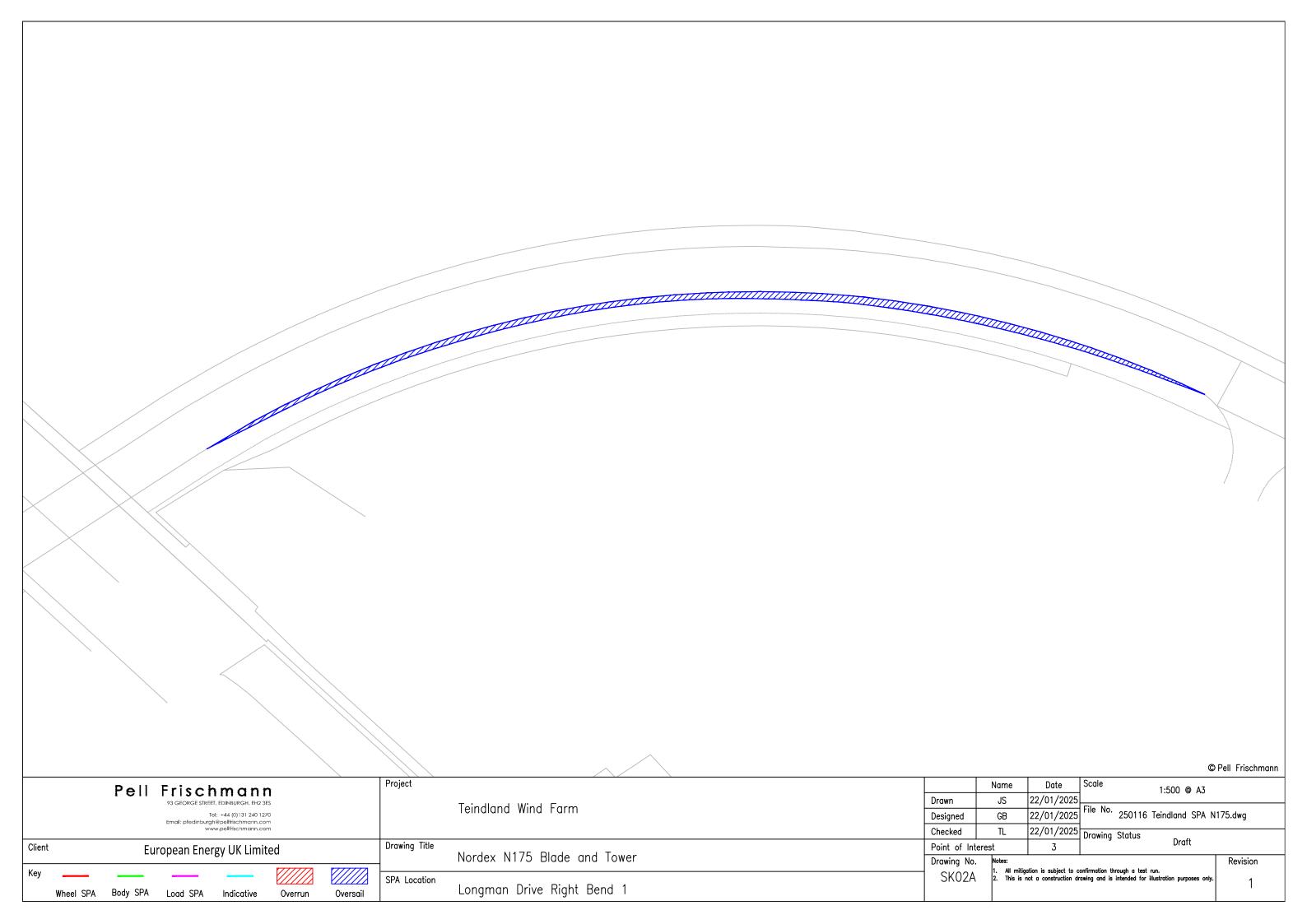


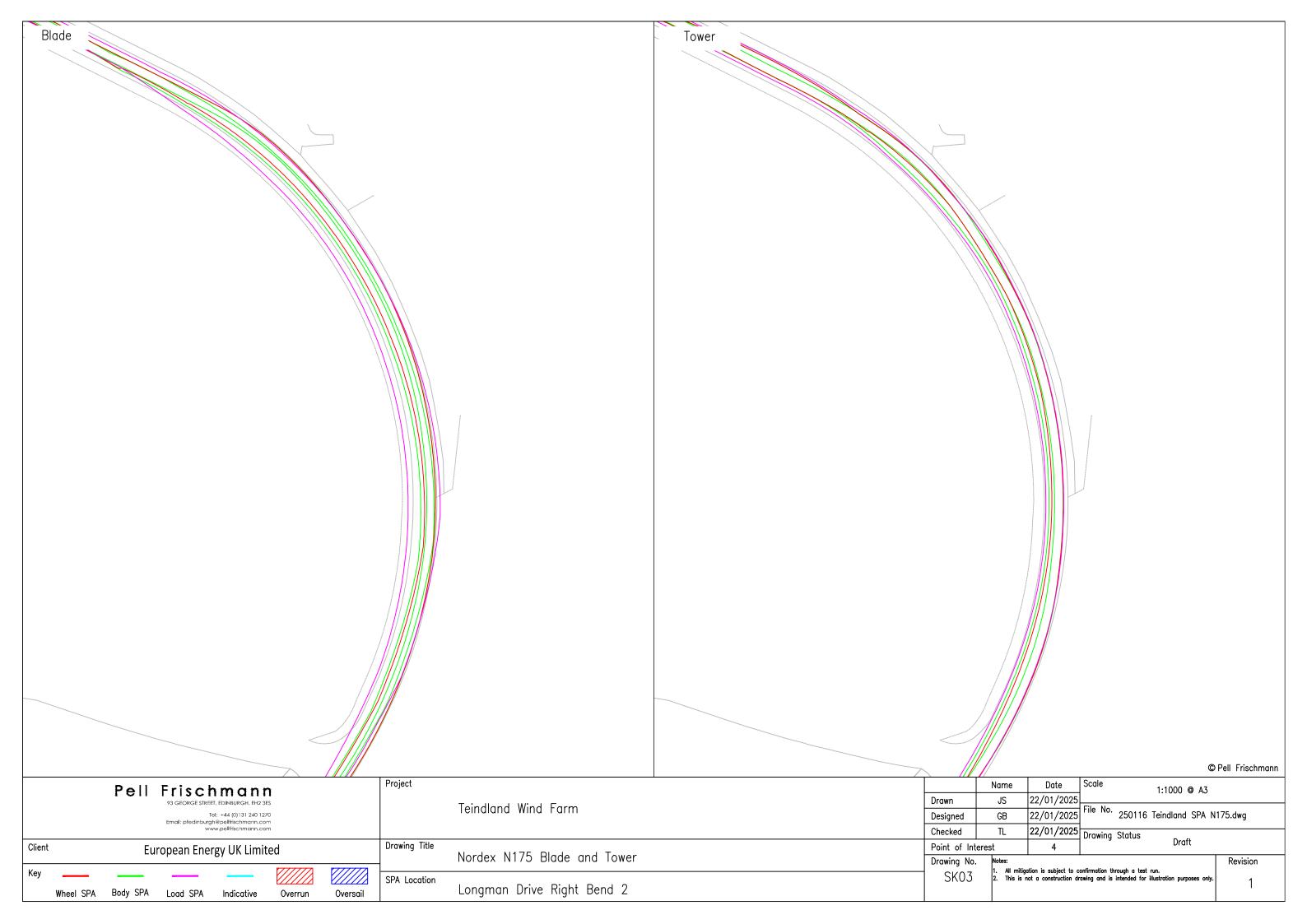
Abnormal Indivisible Load Route Survey Appendix B Swept Path Assessments

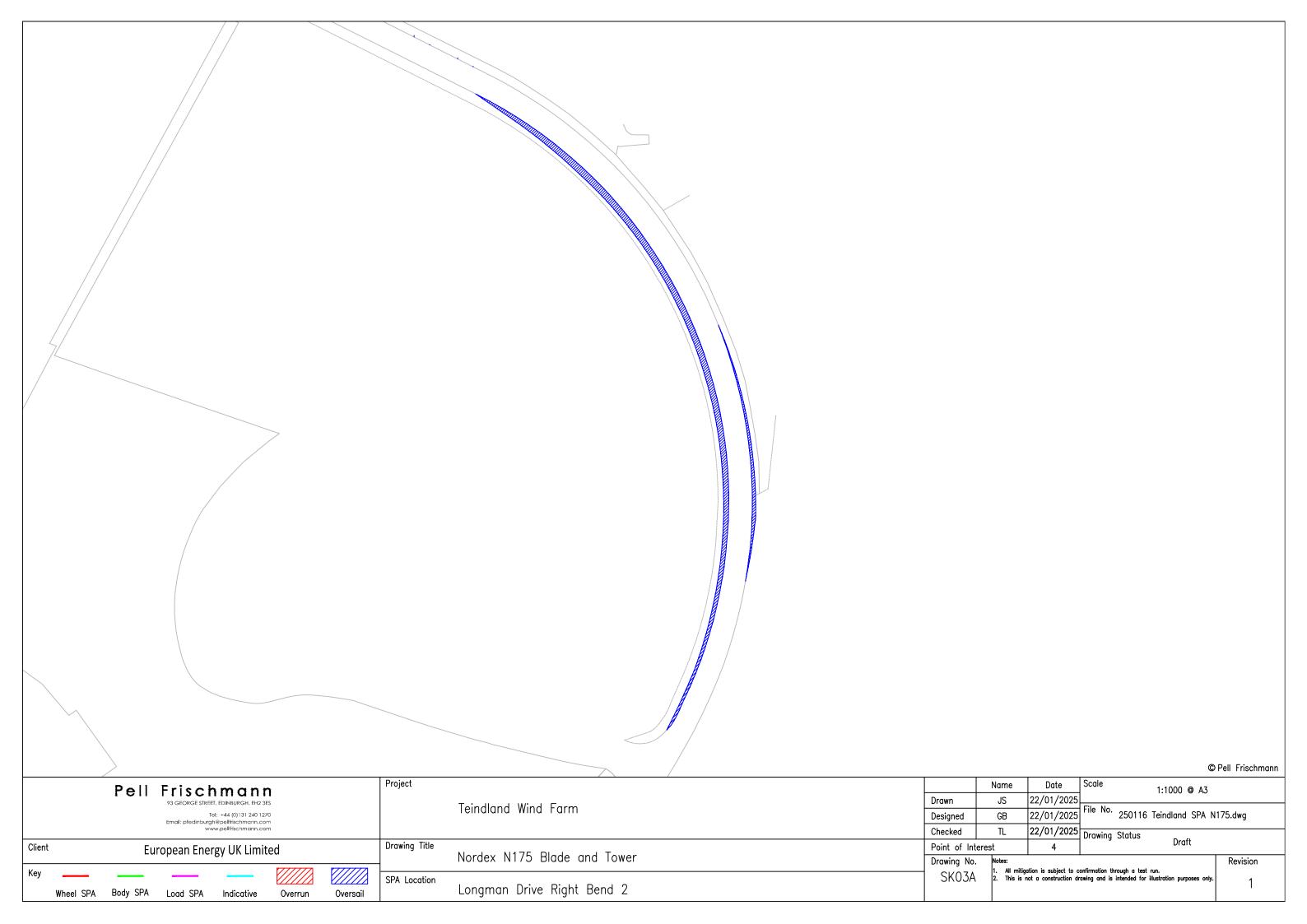




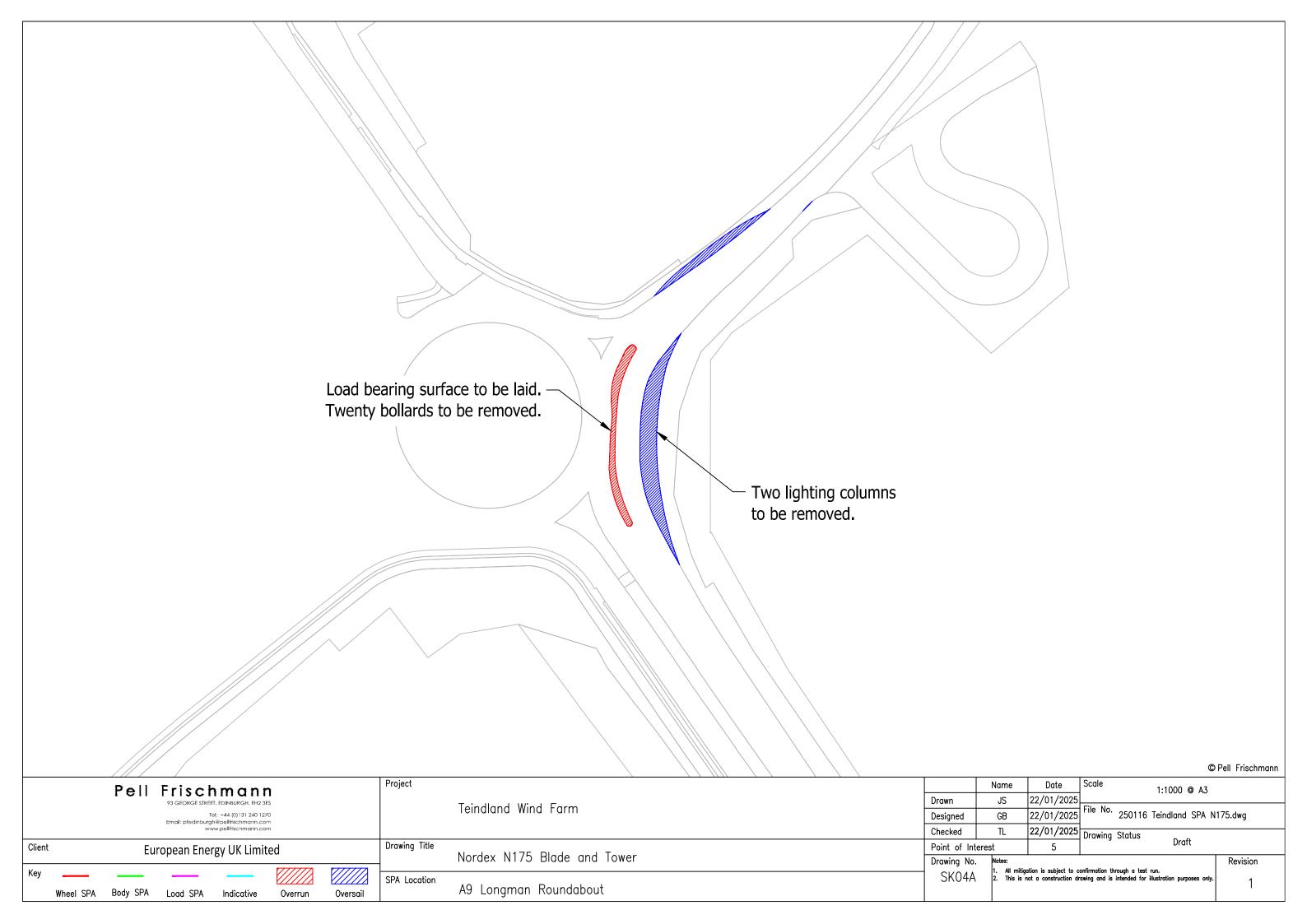


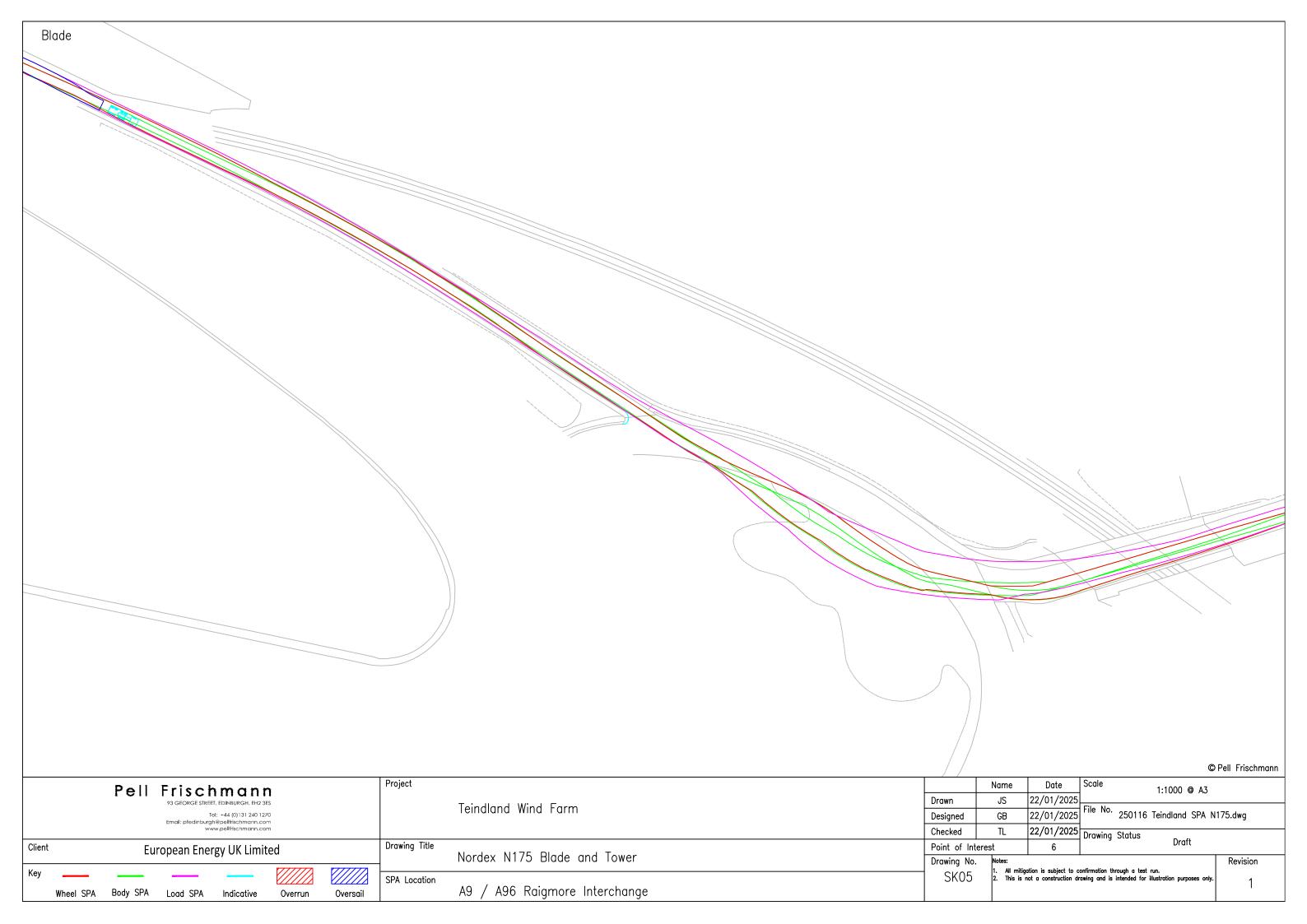


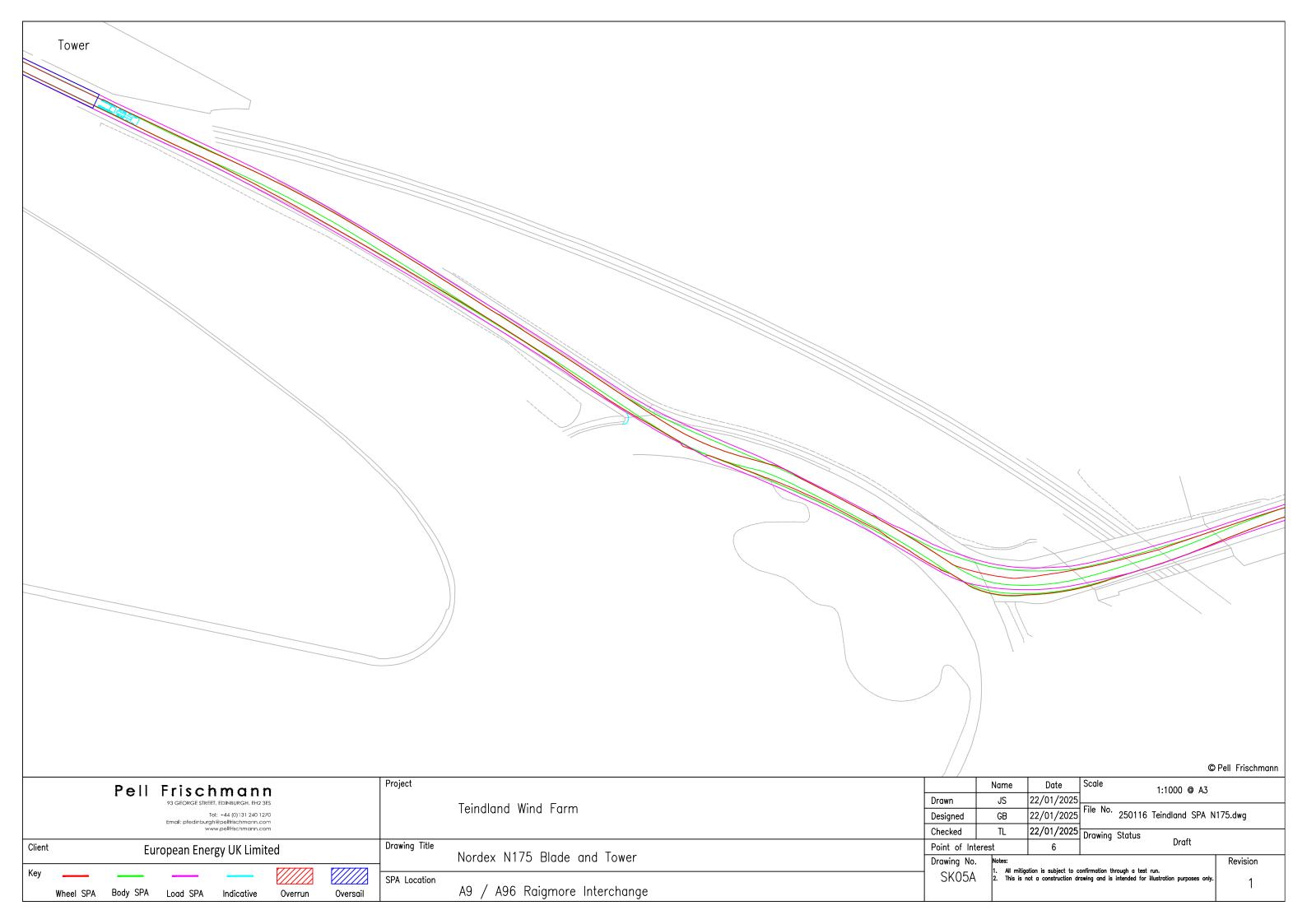


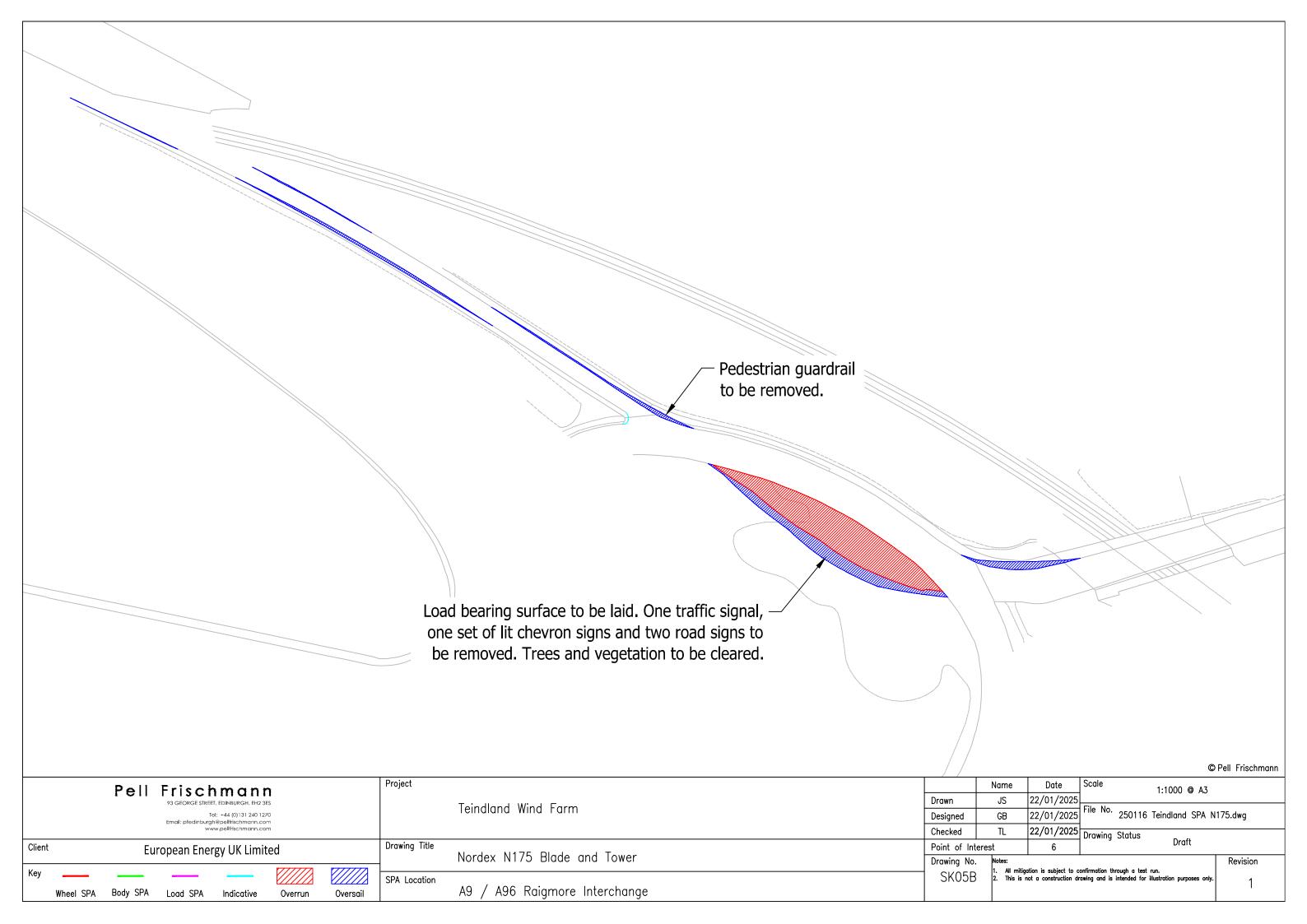


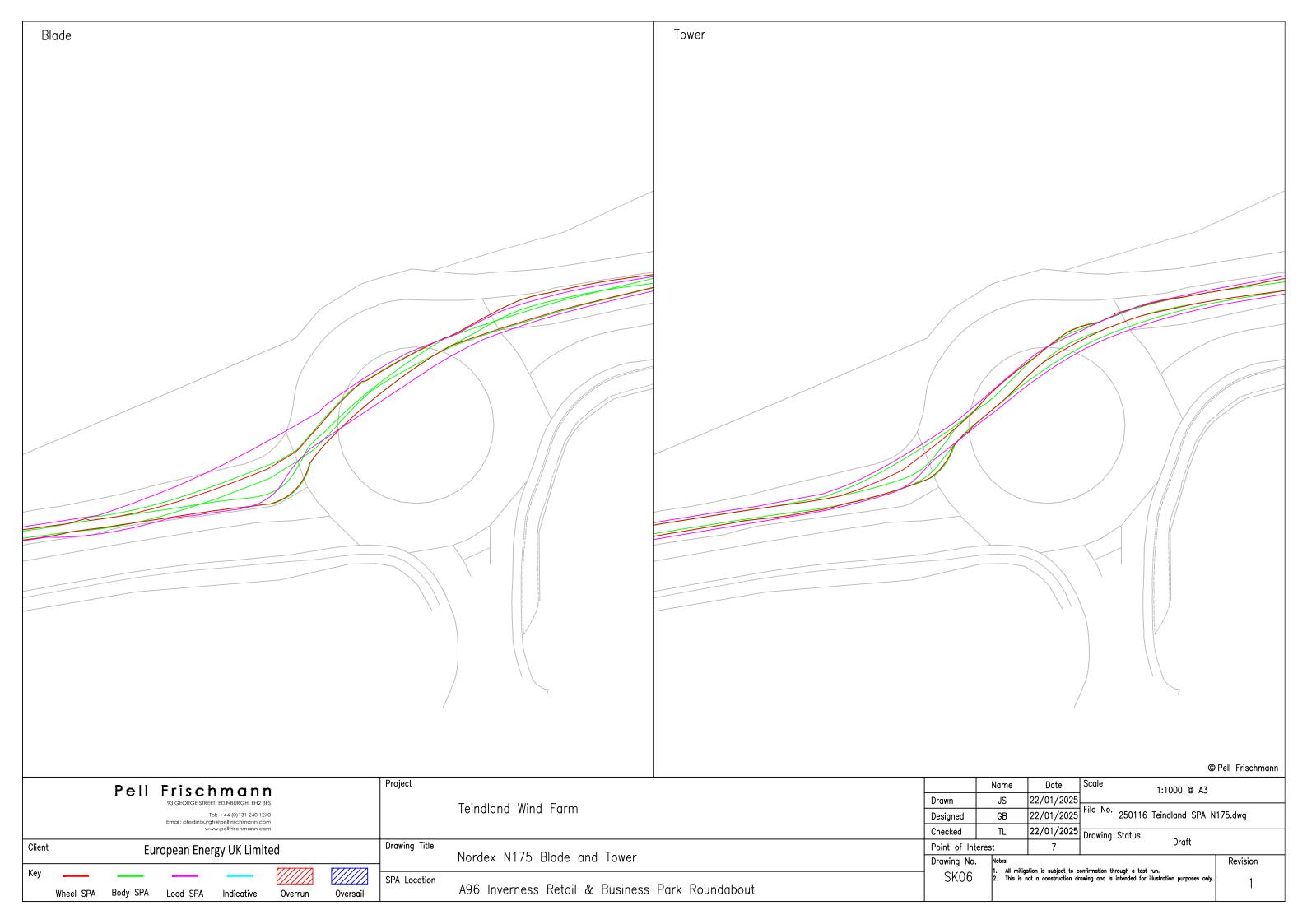


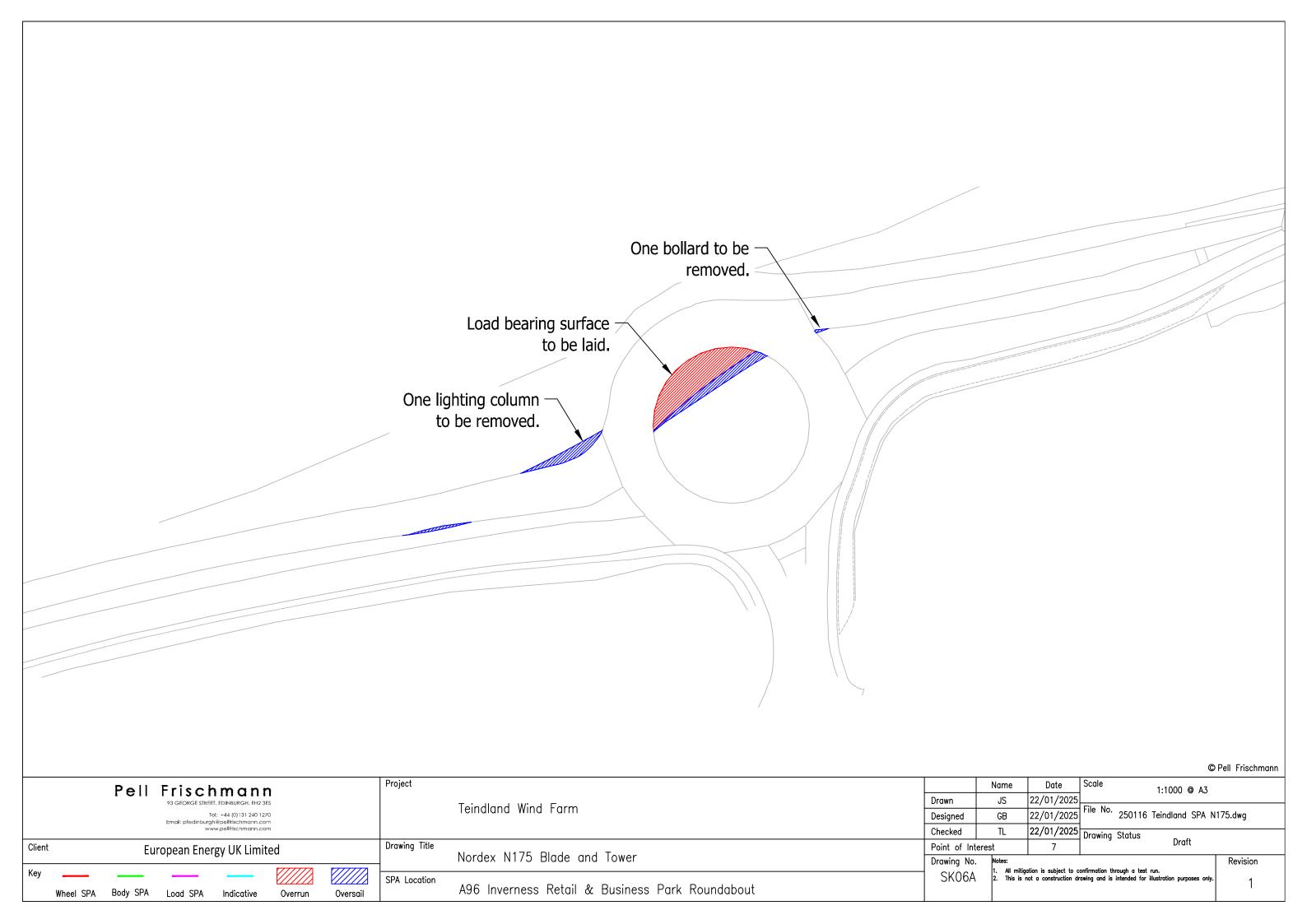


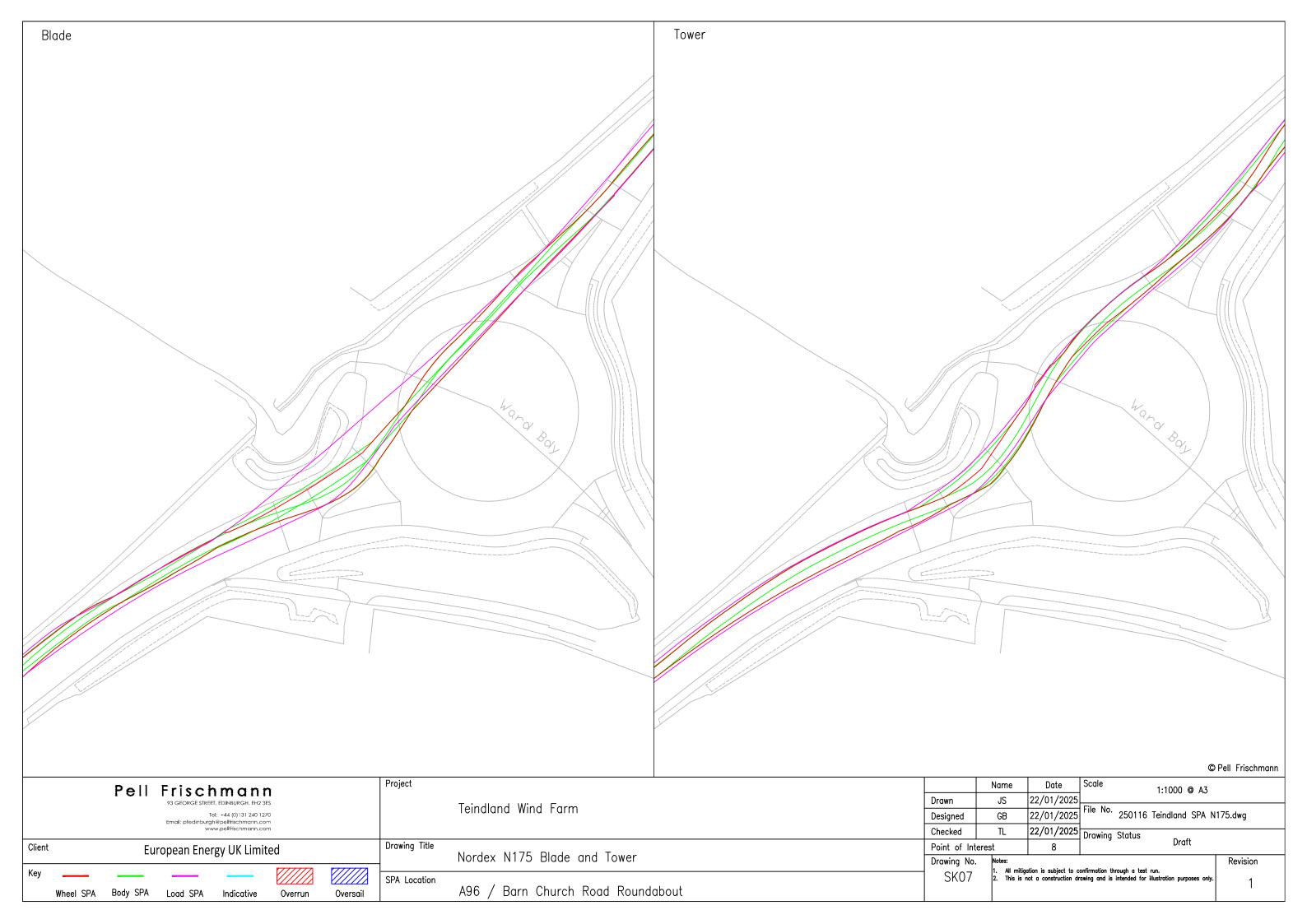


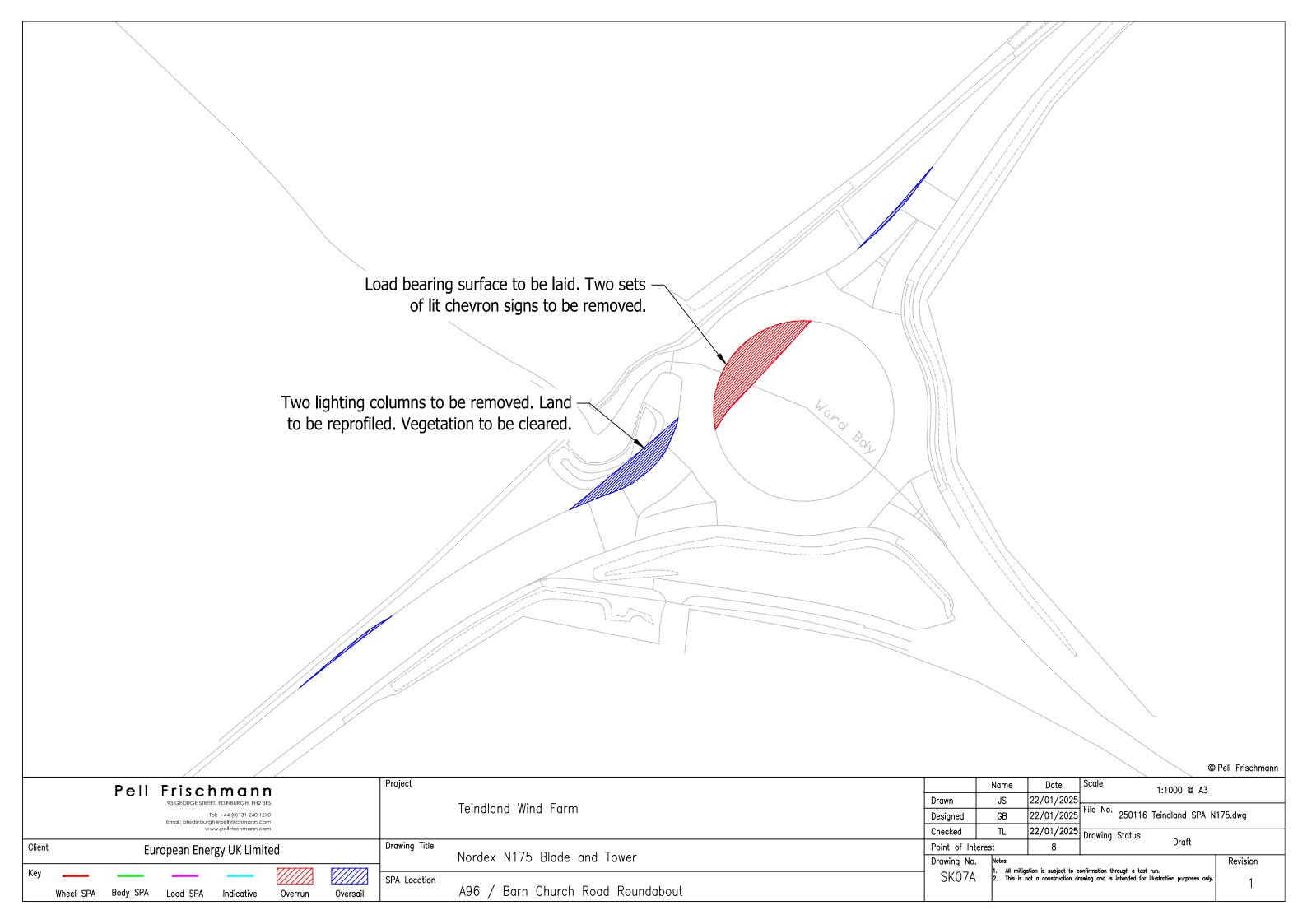




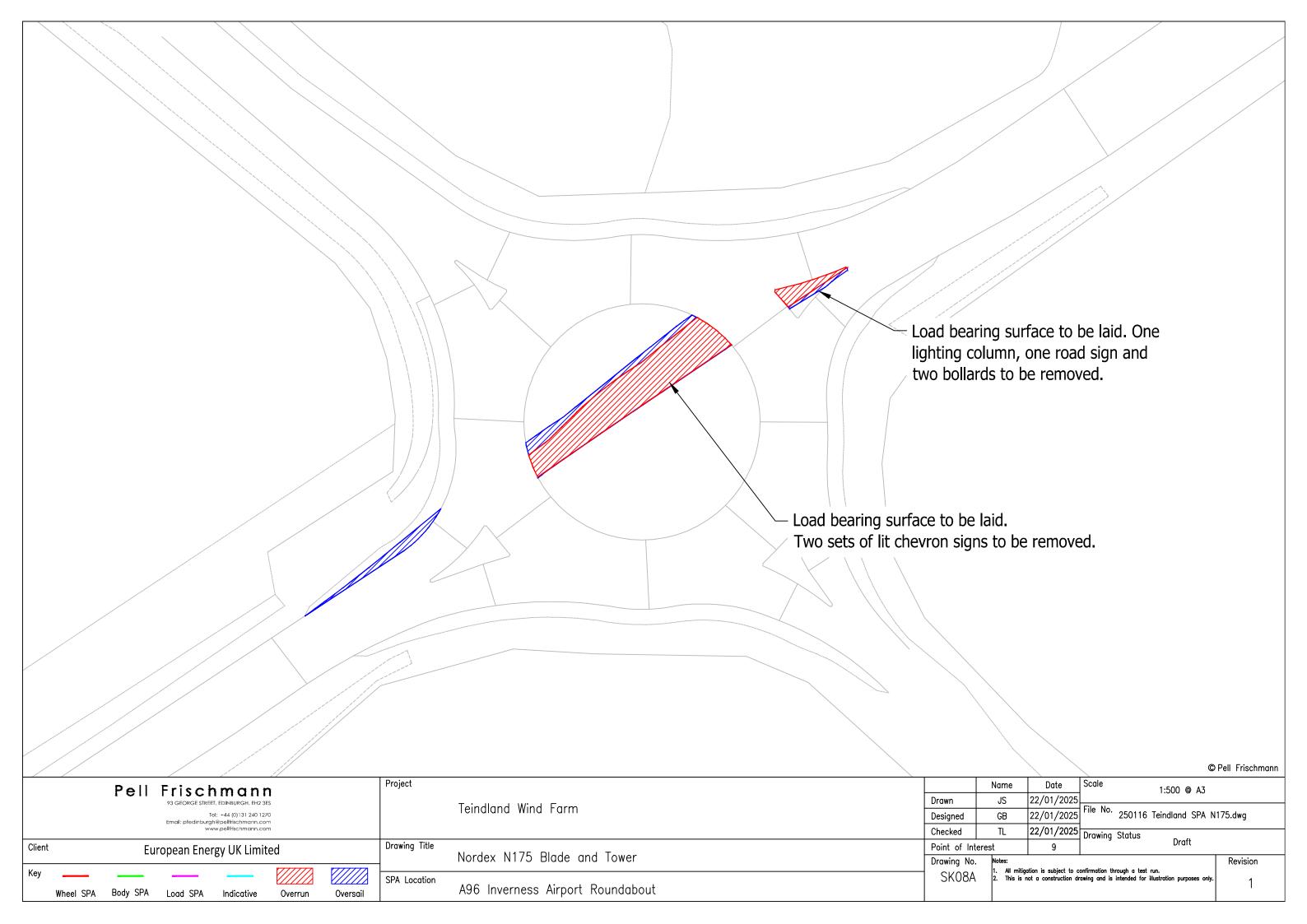


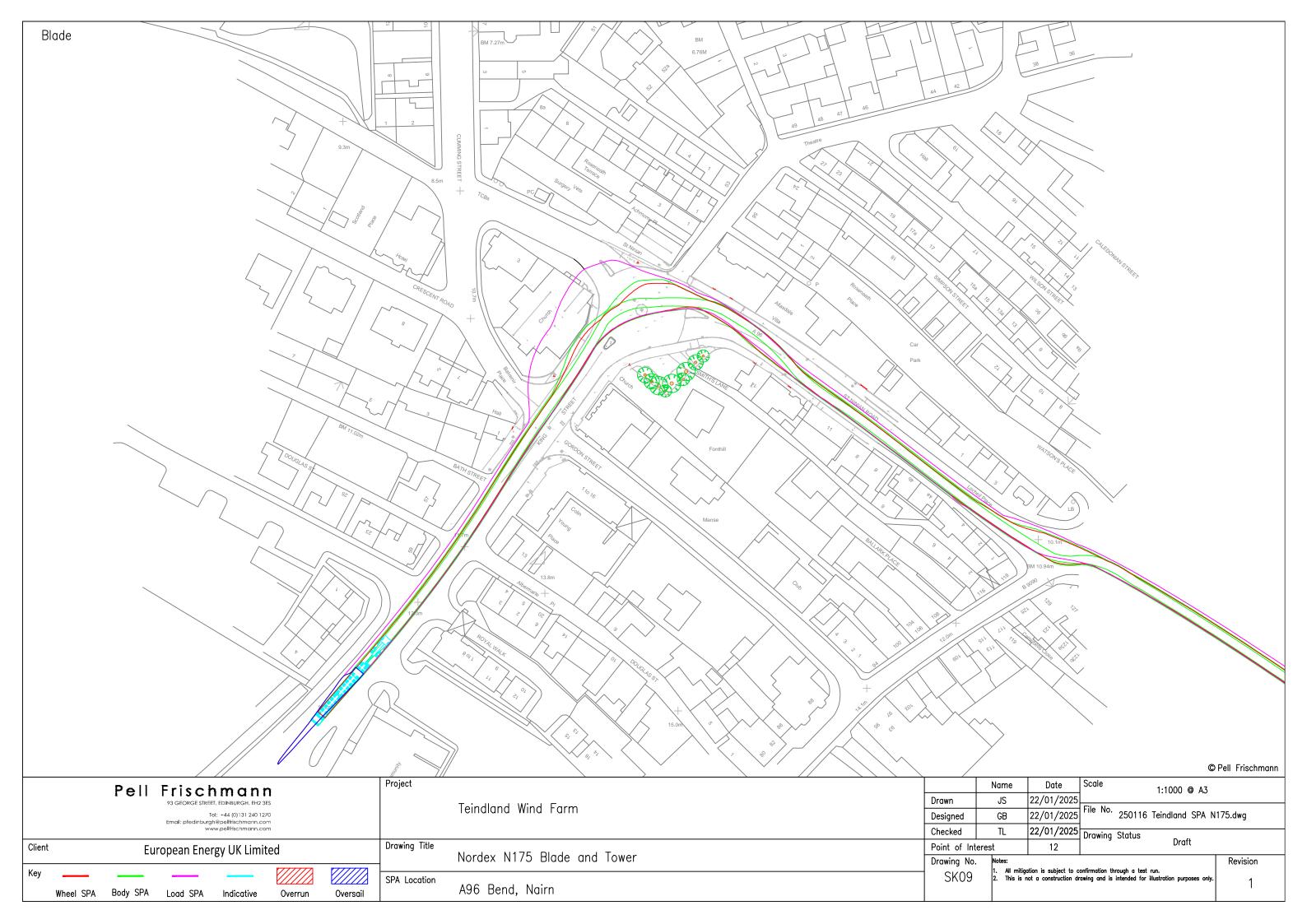


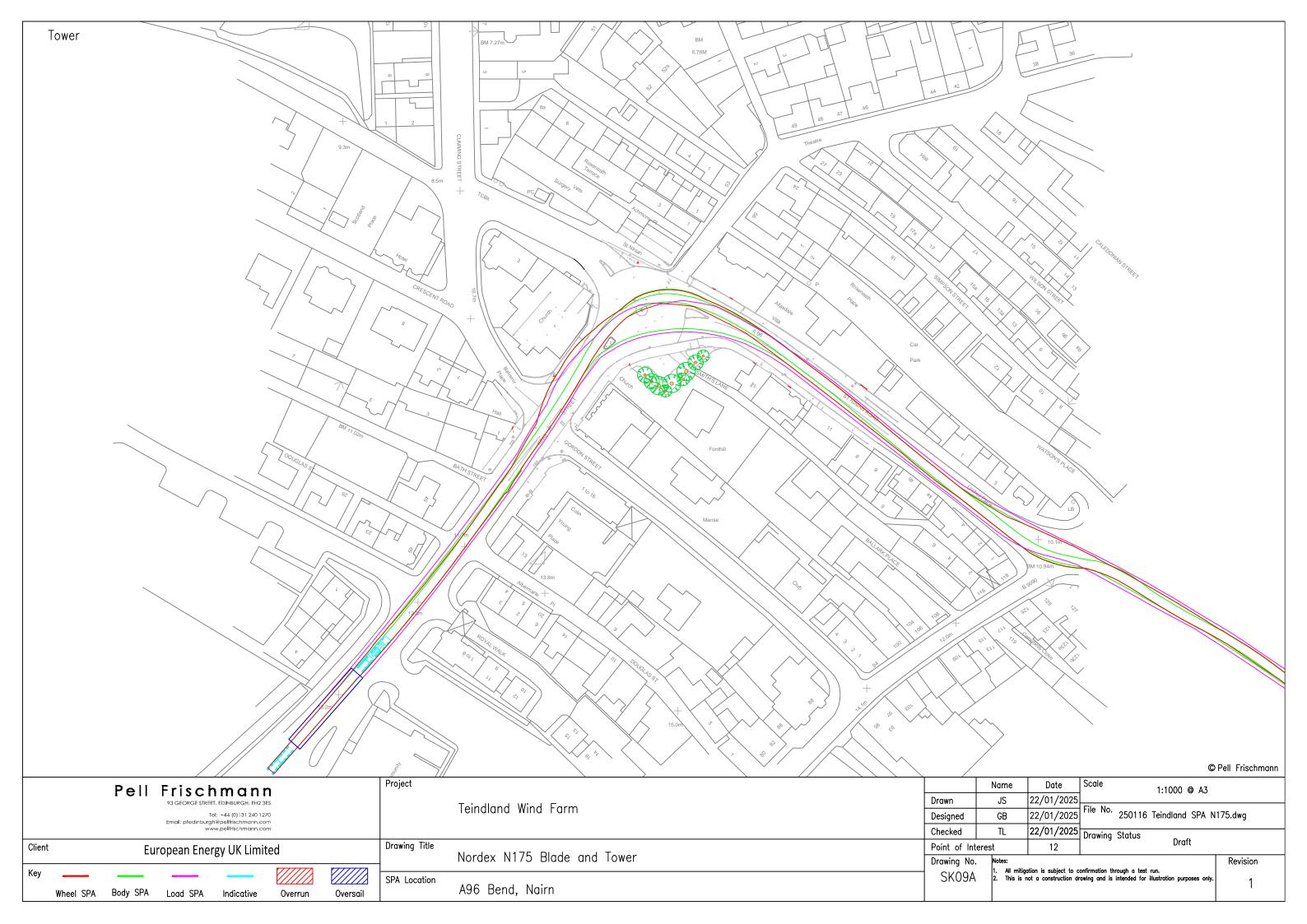


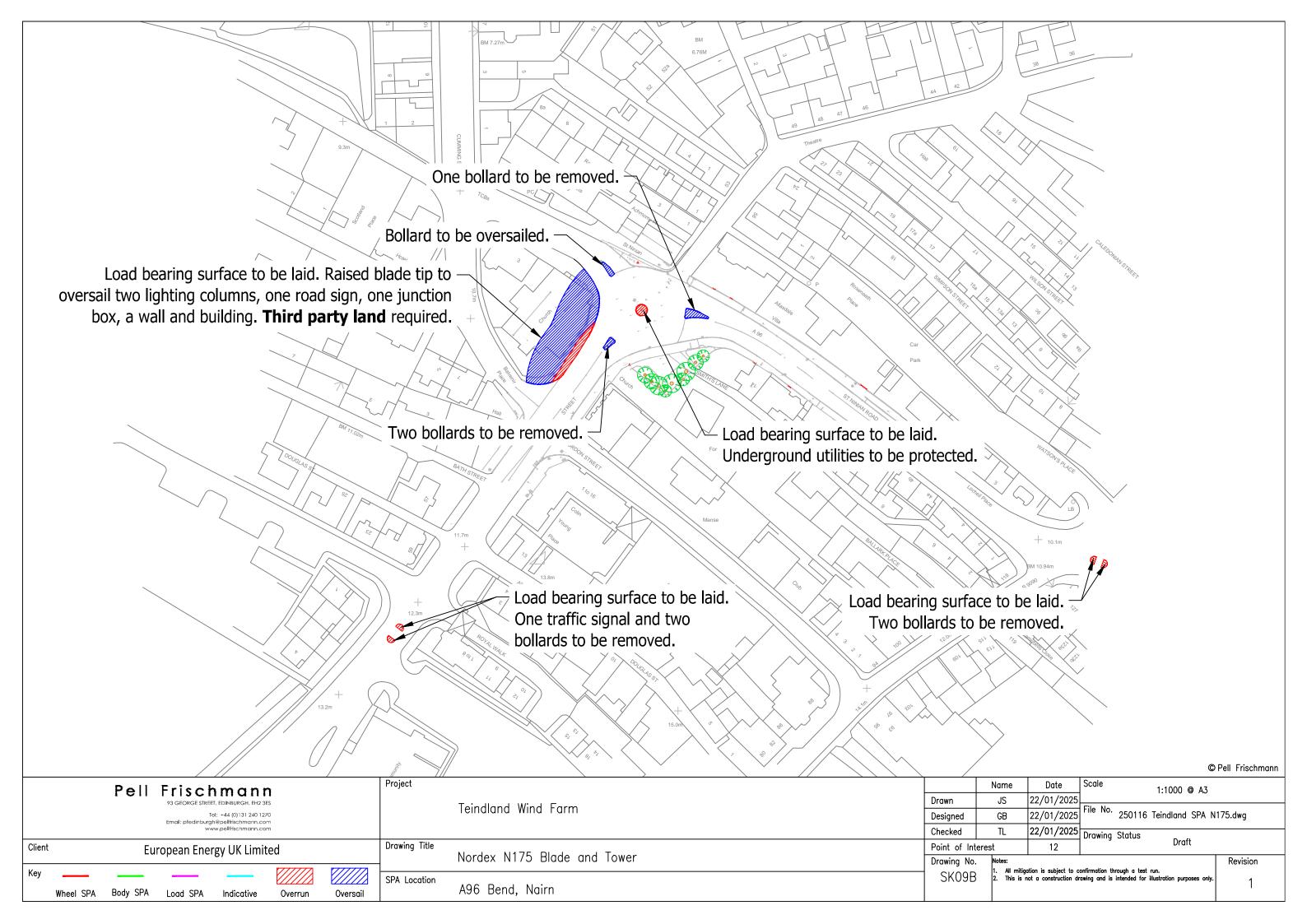


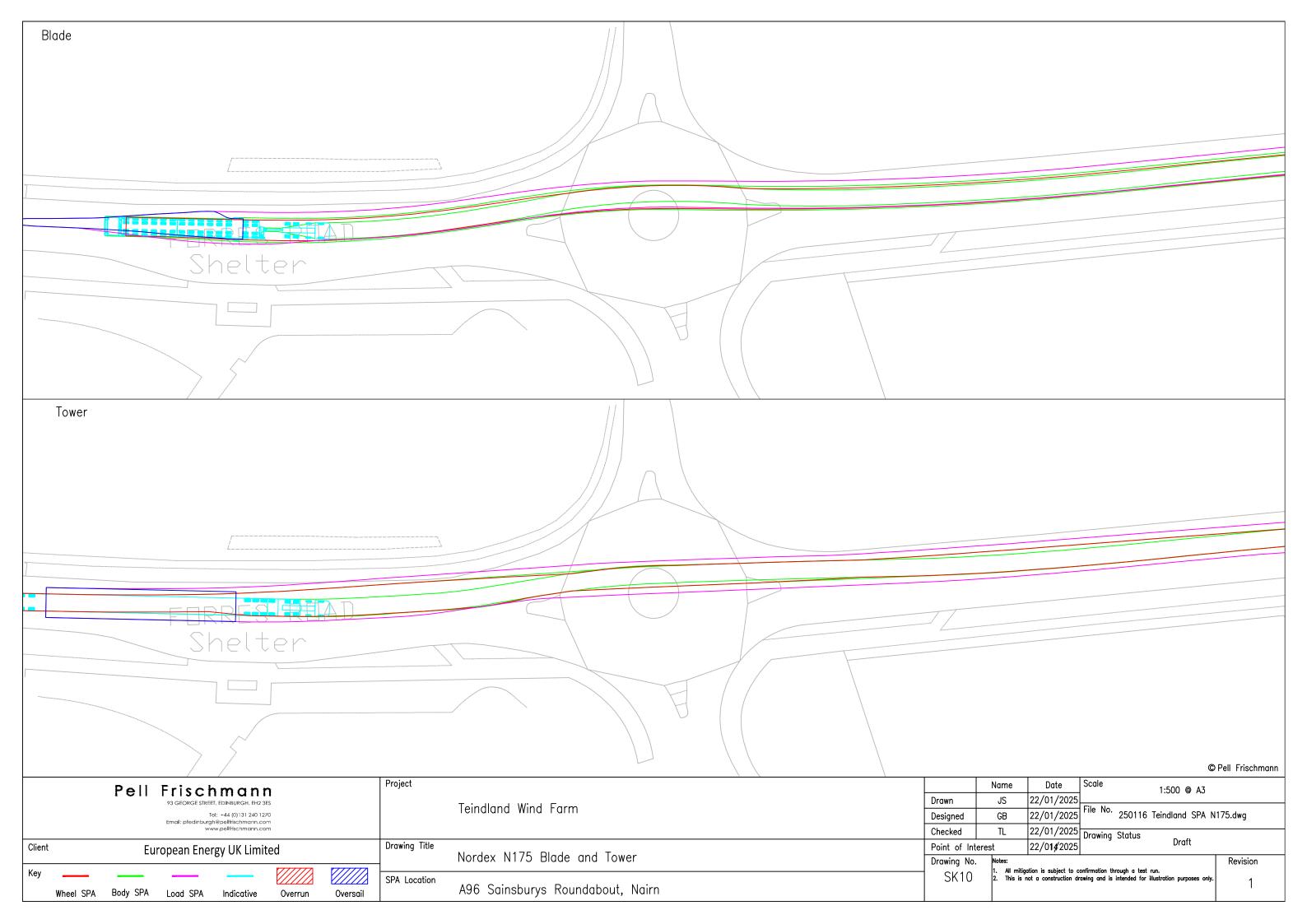


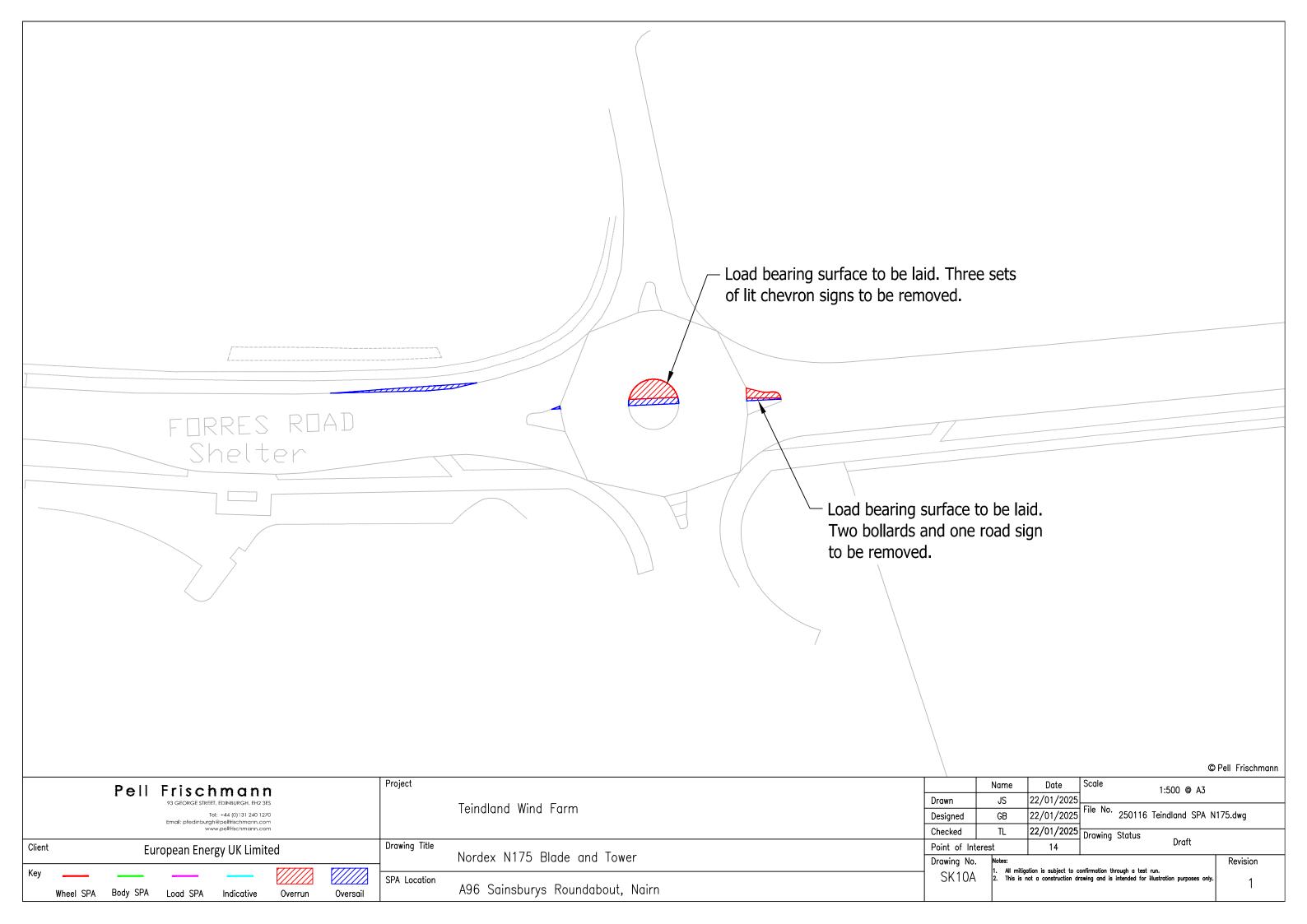


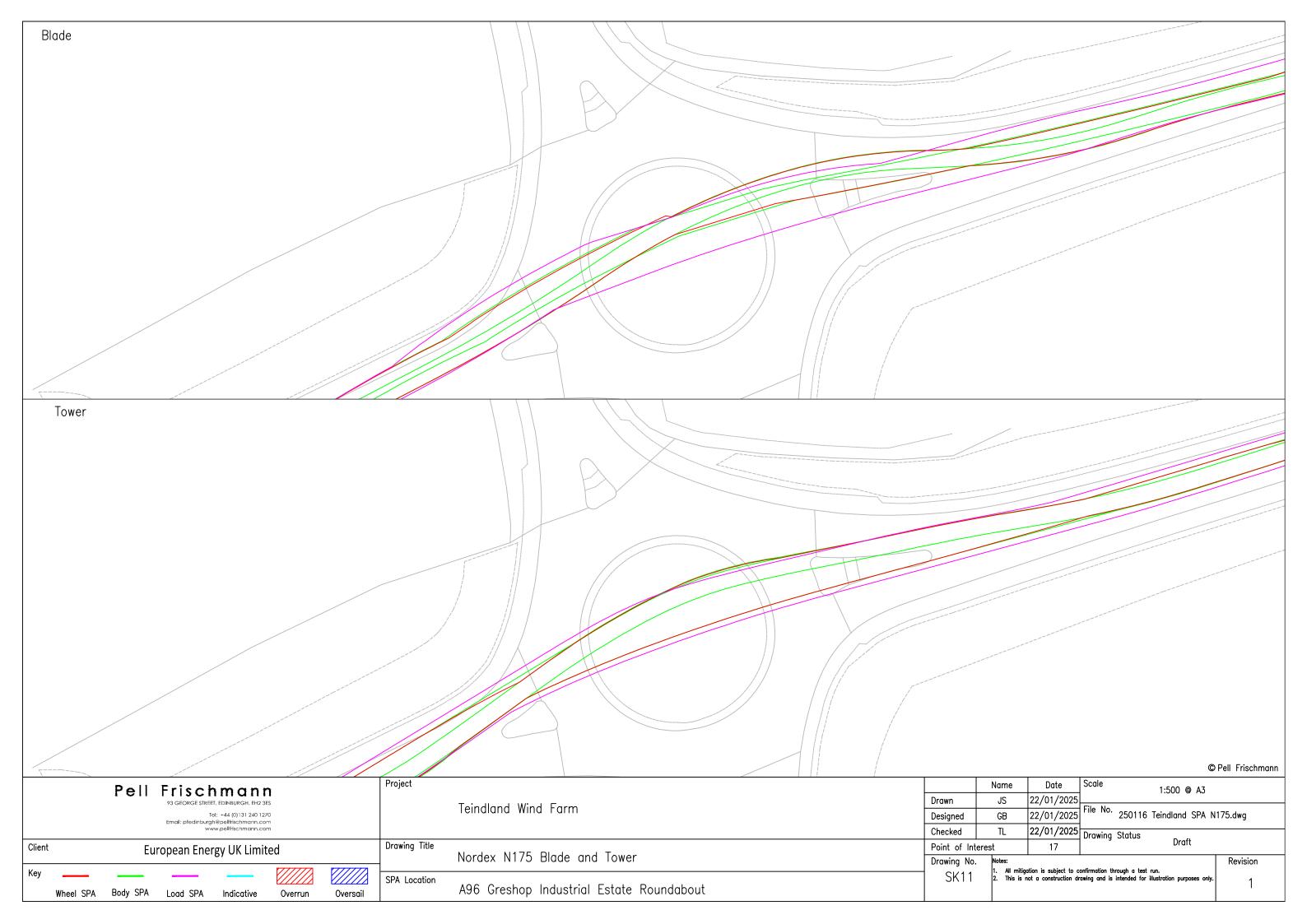


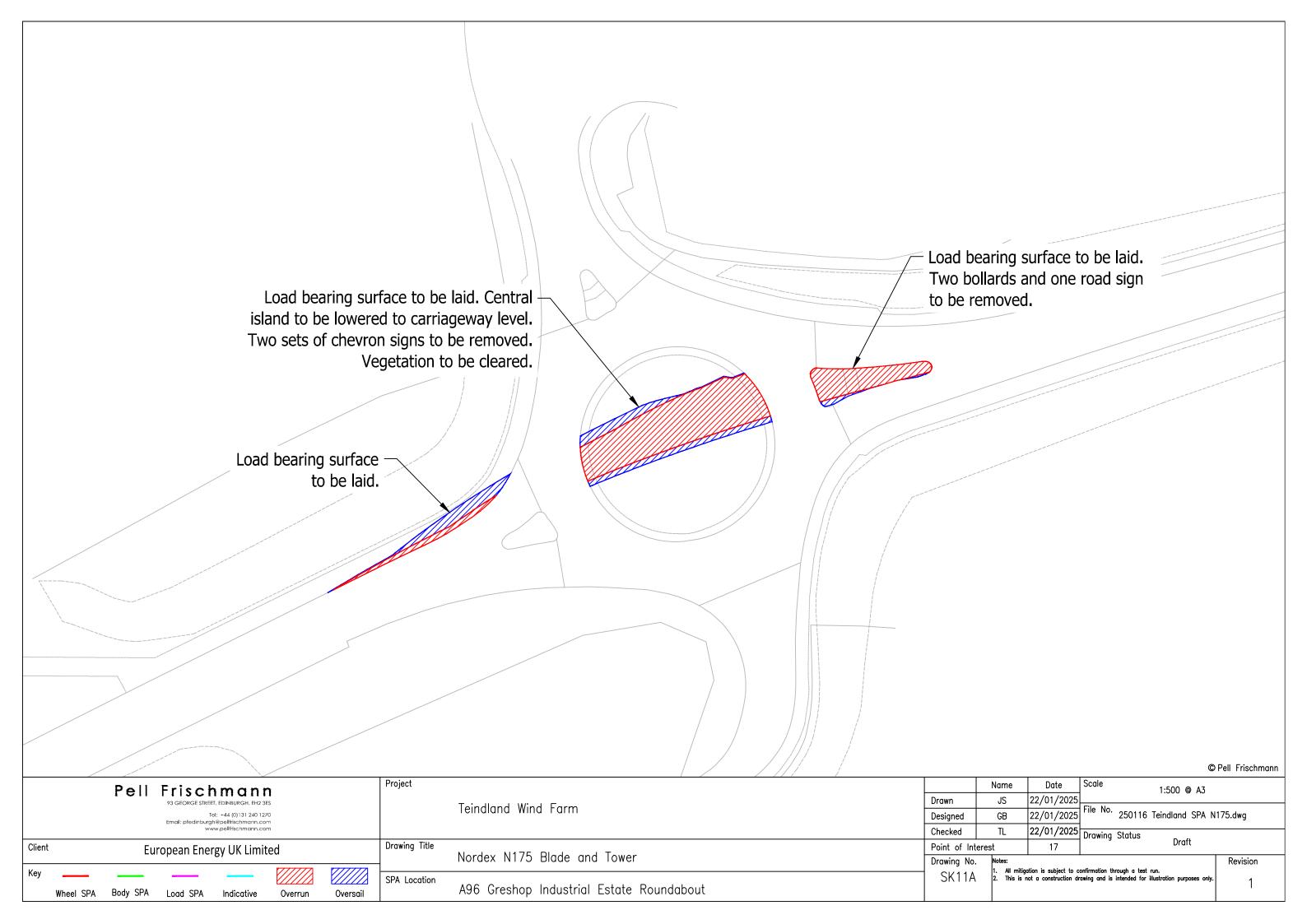


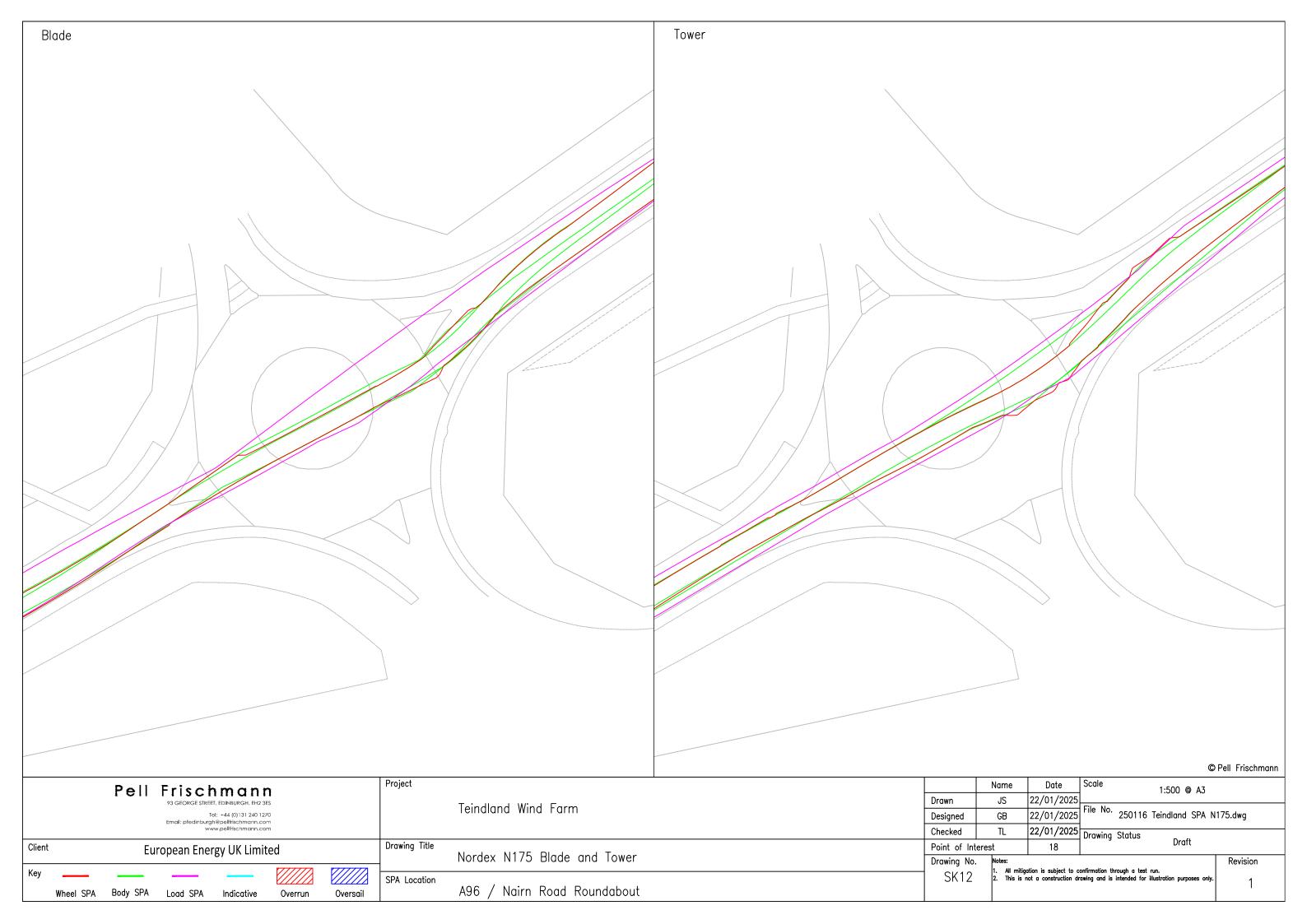


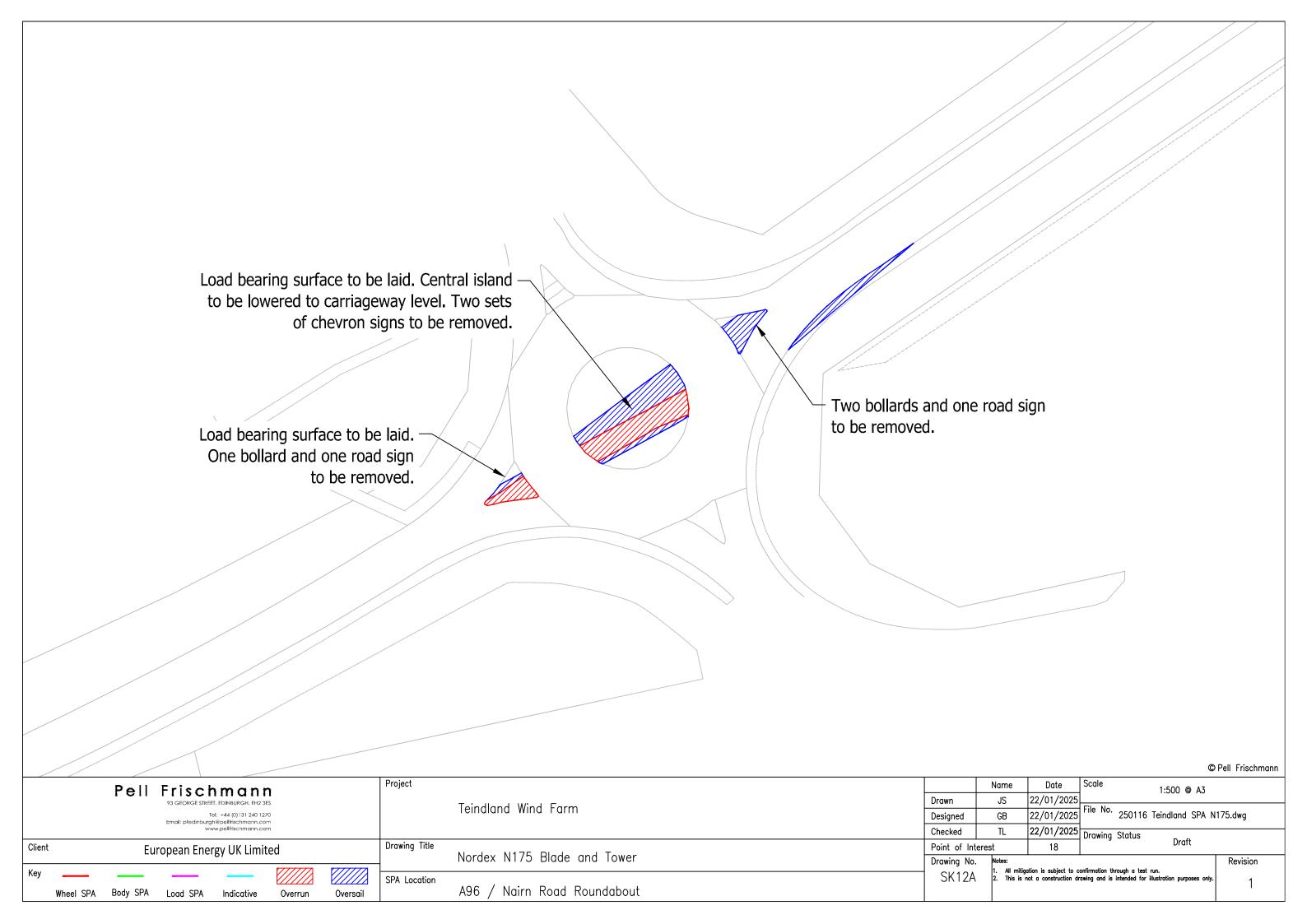


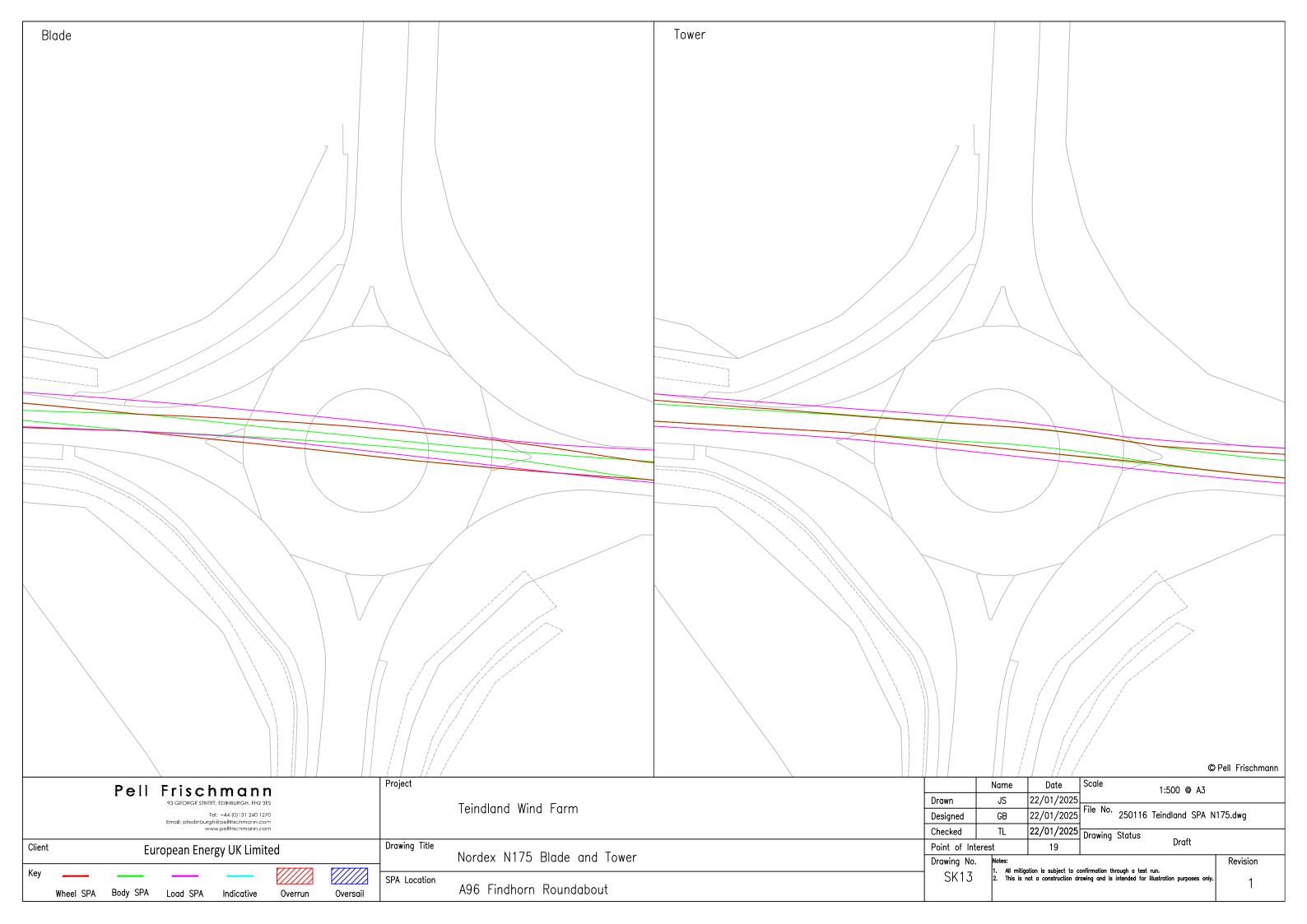


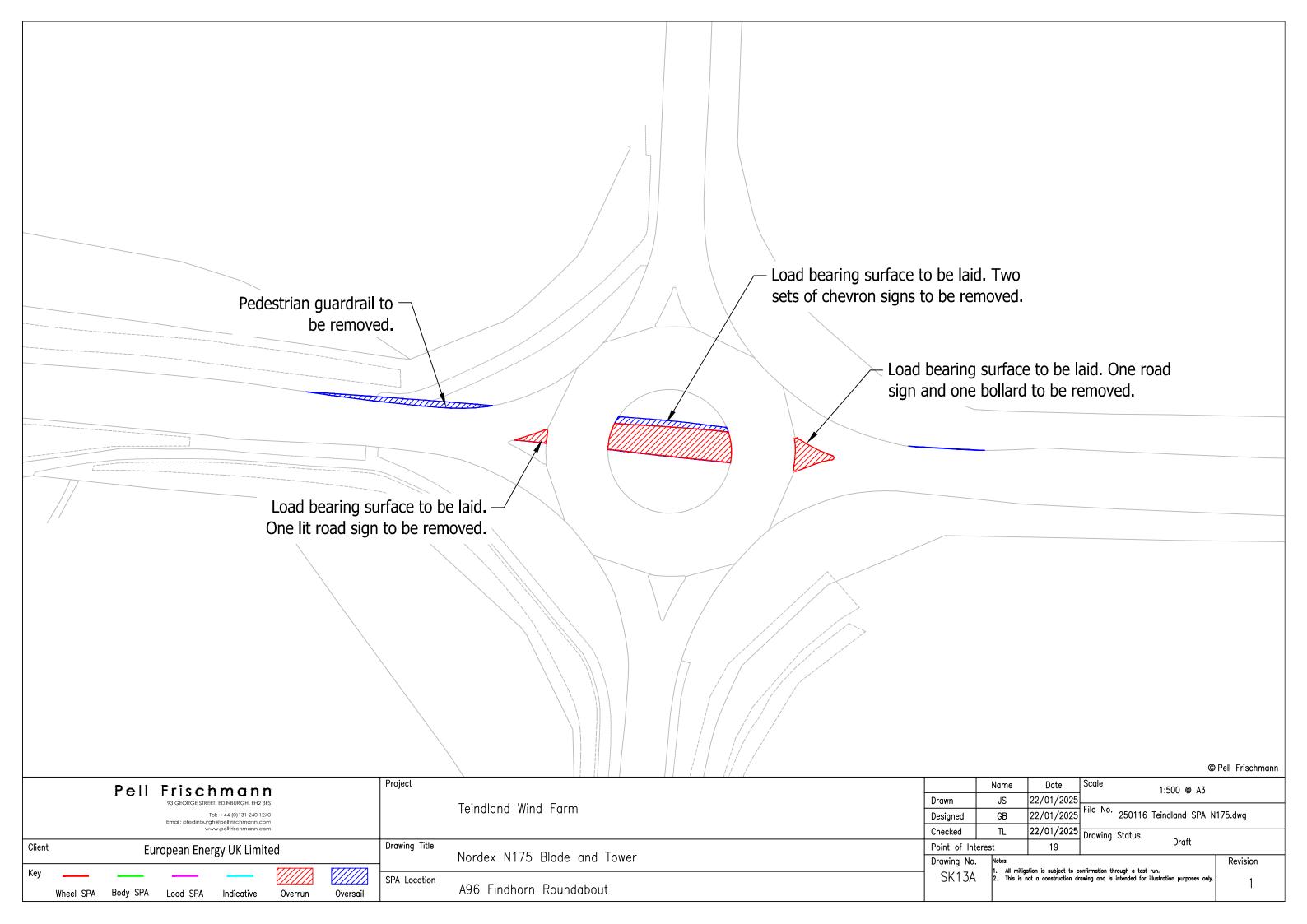


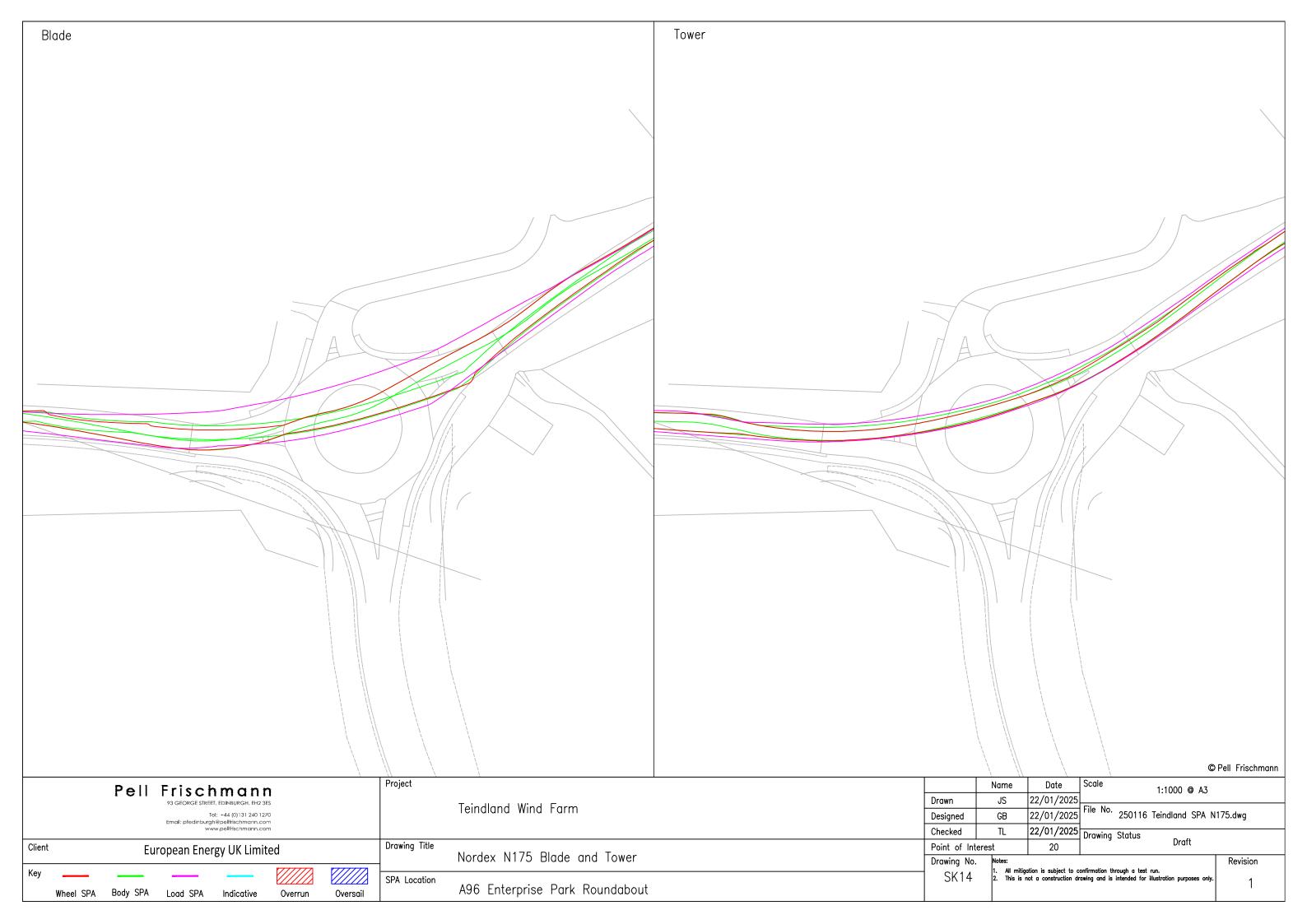


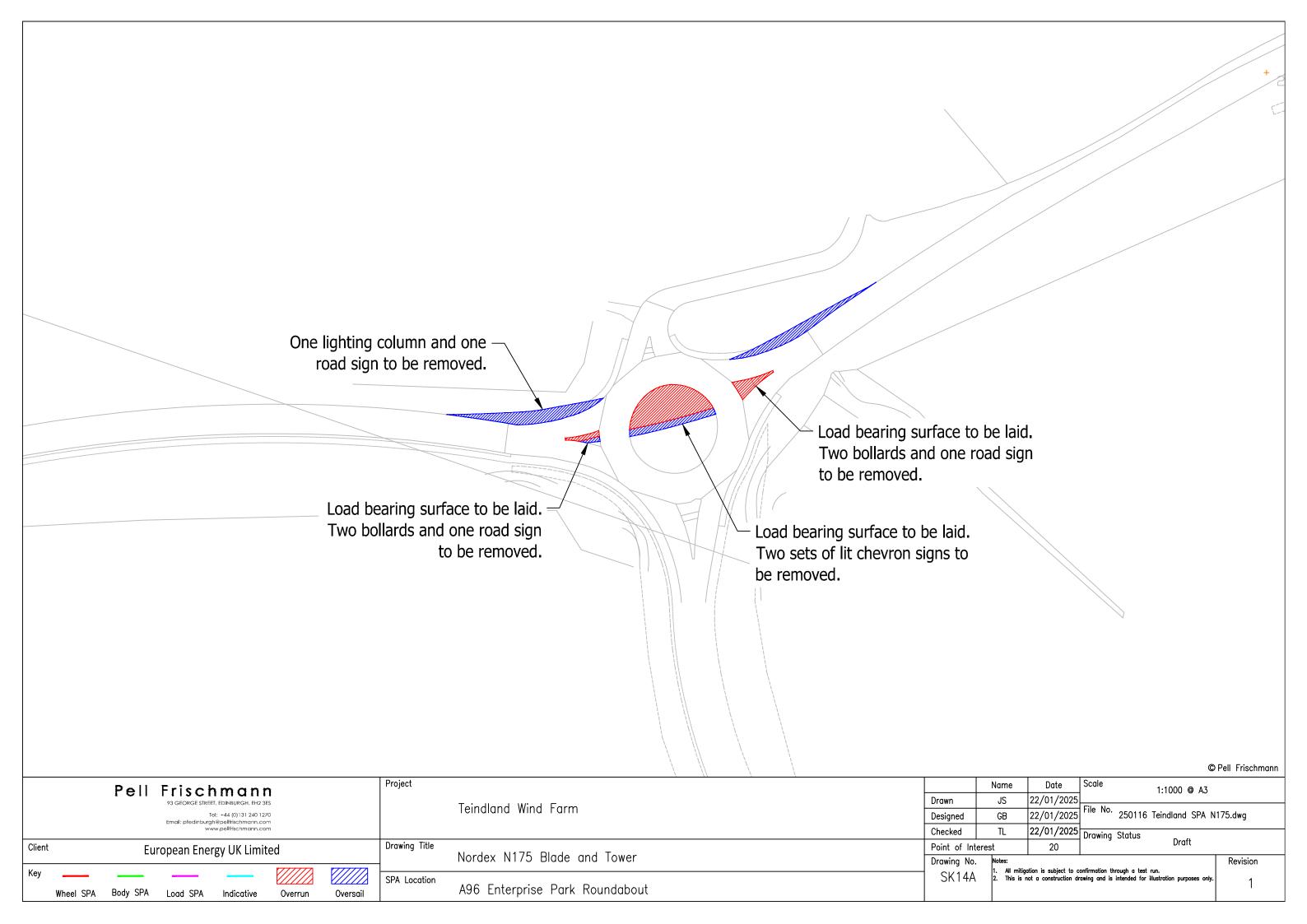


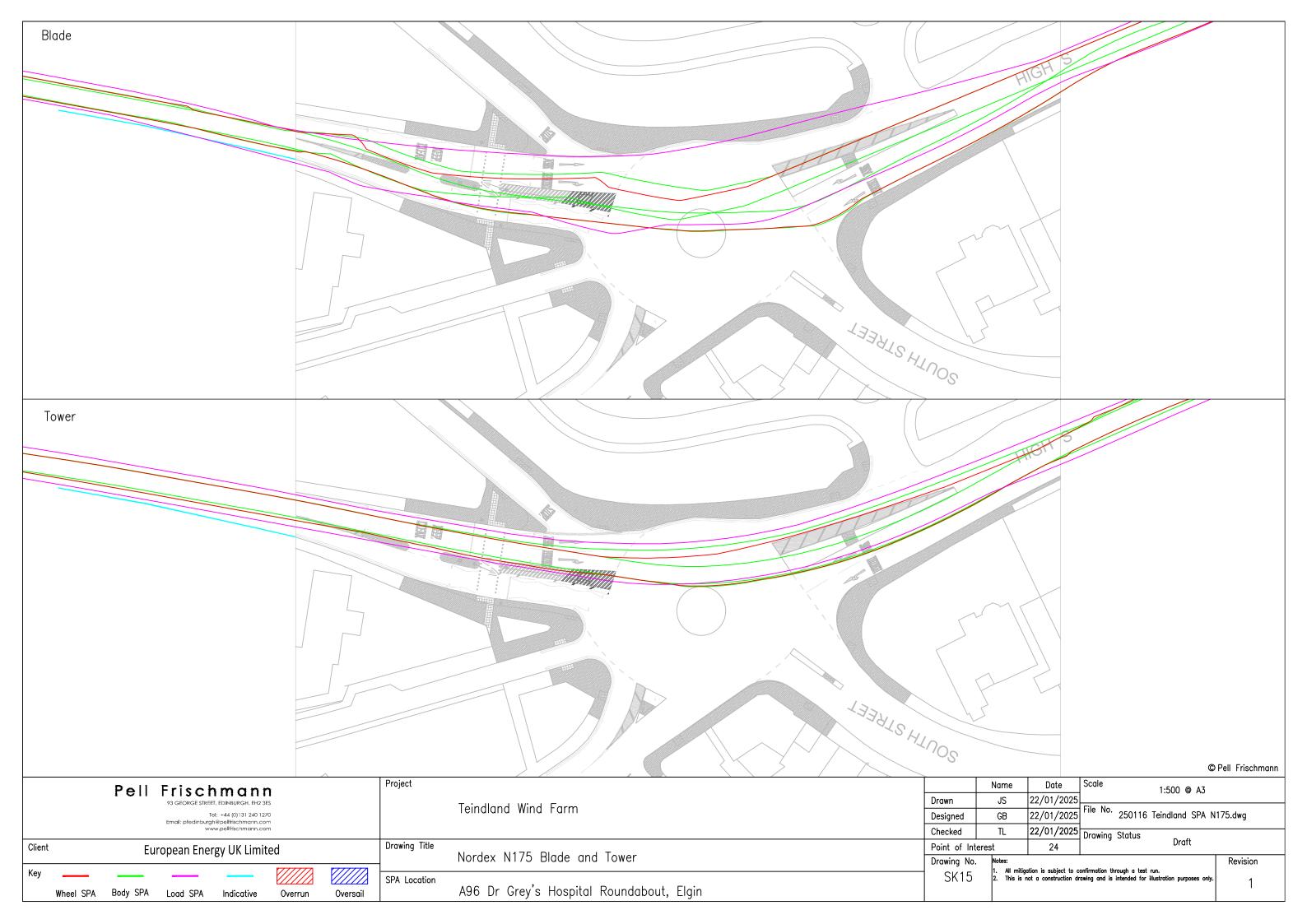


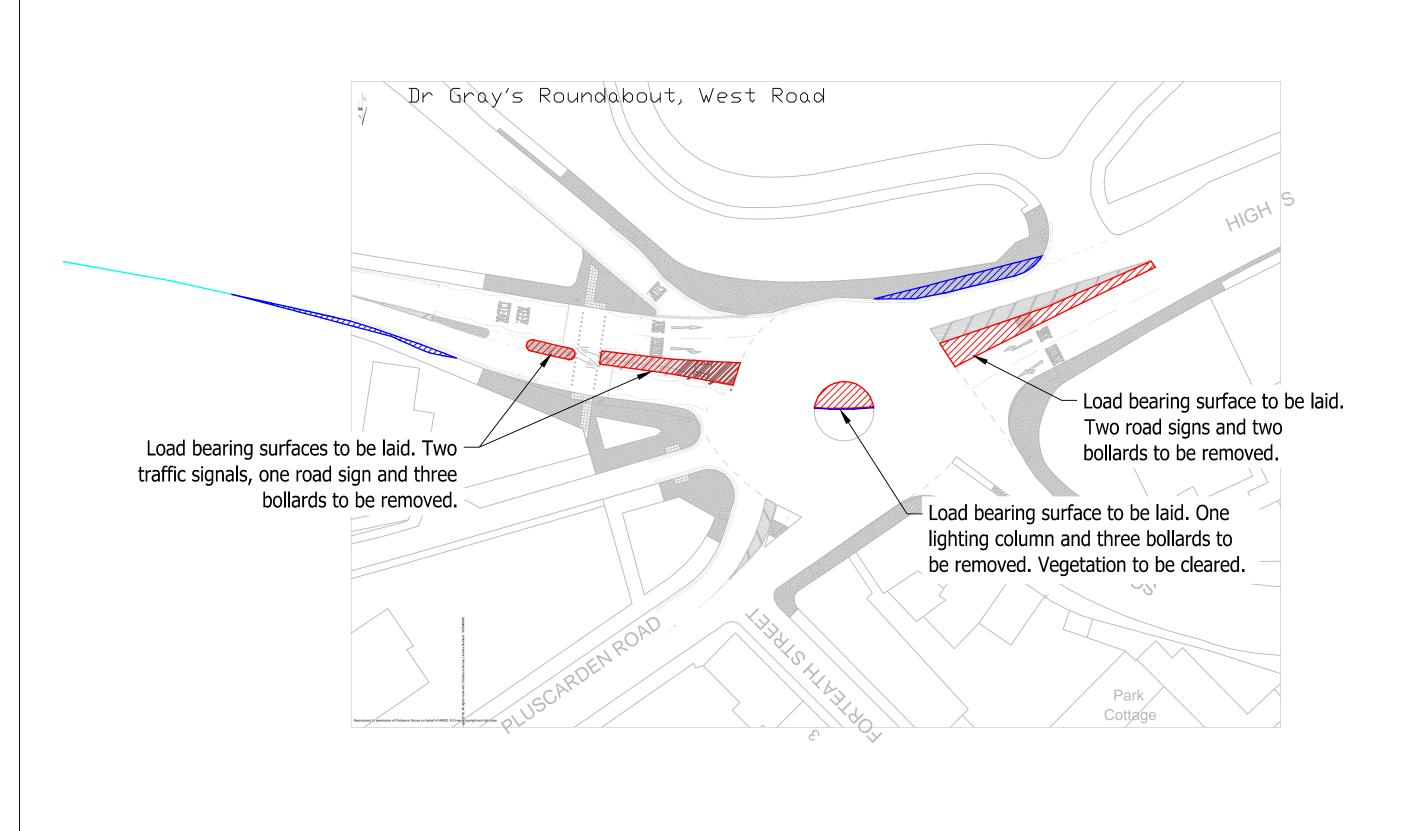






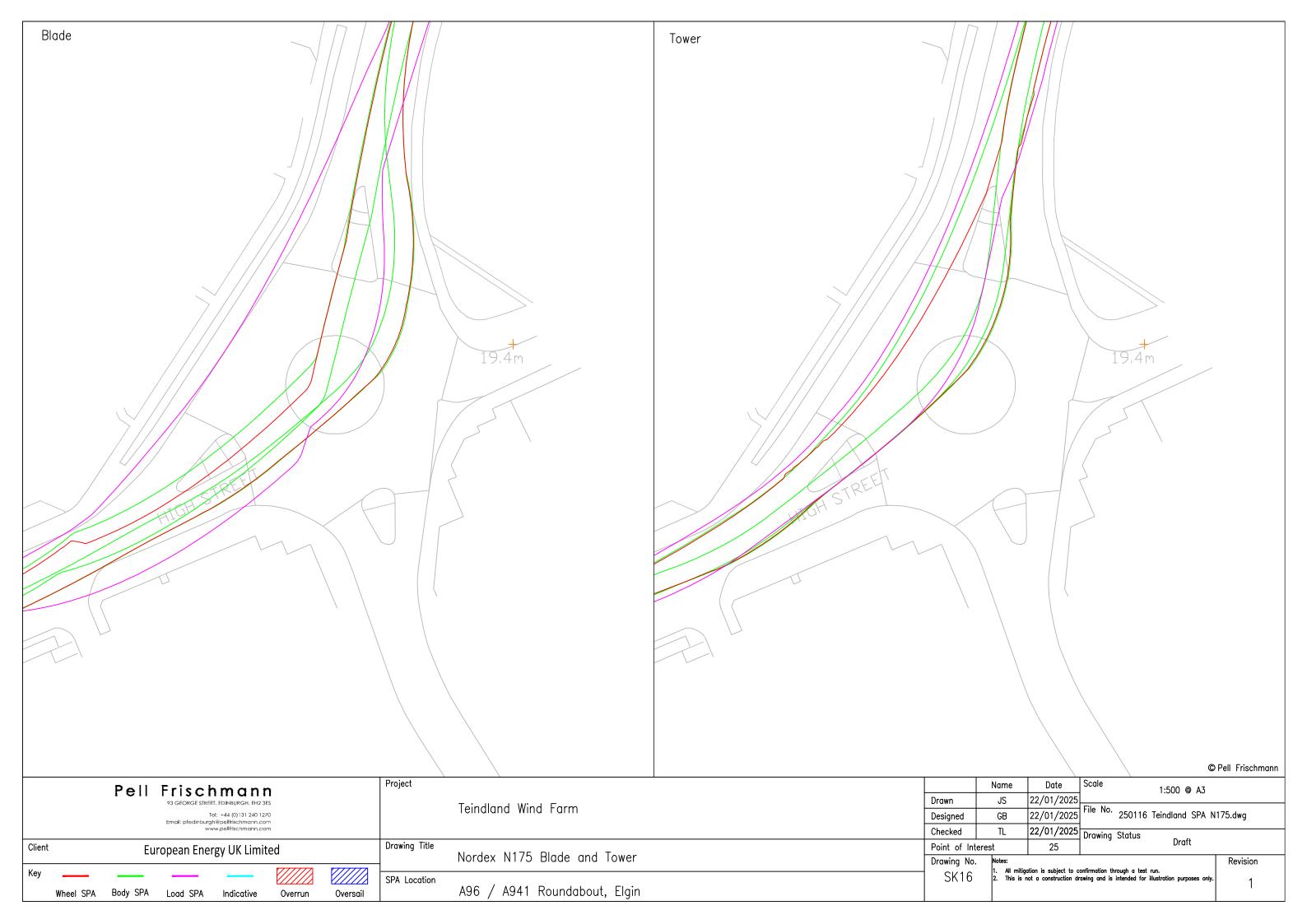


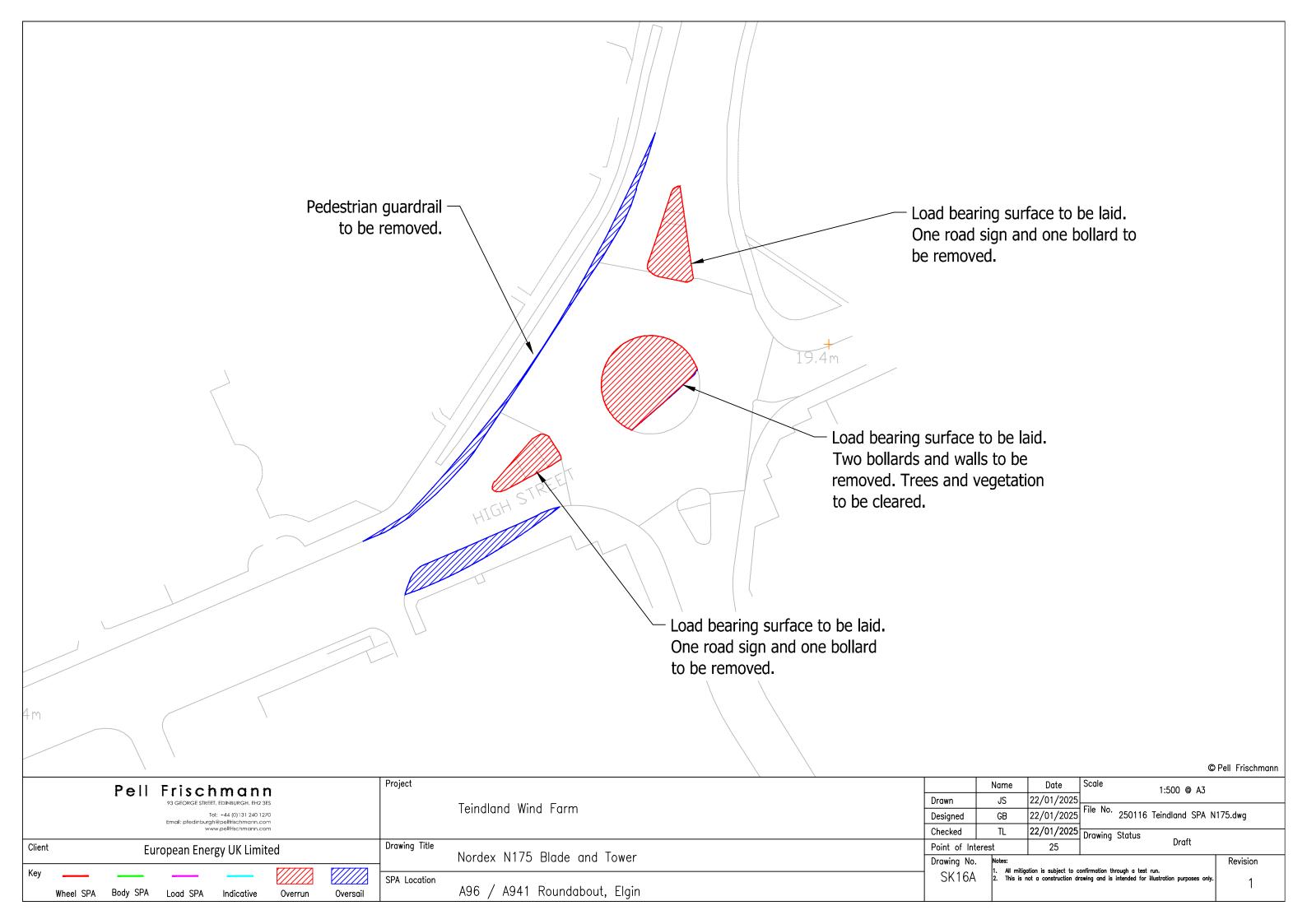


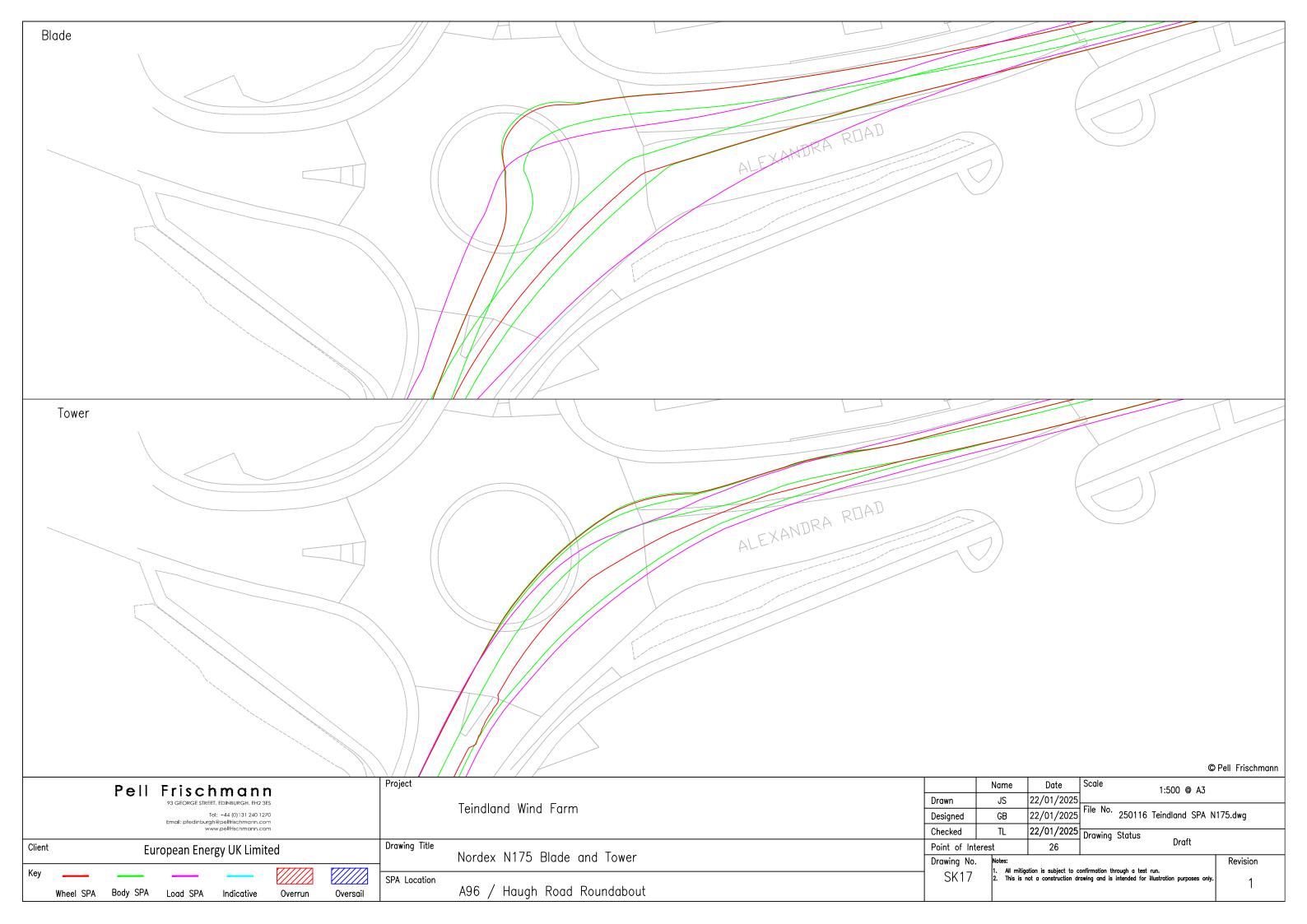


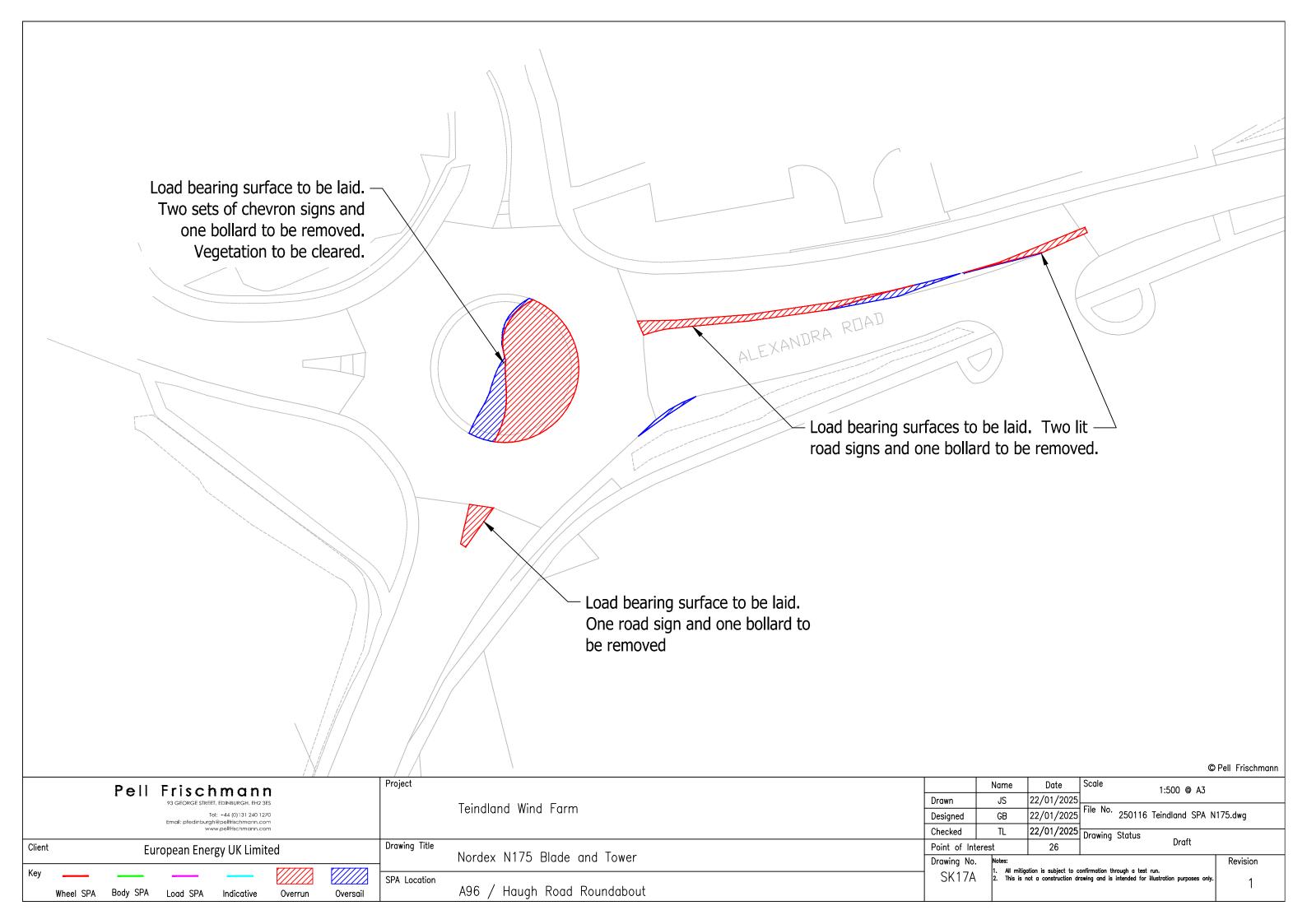
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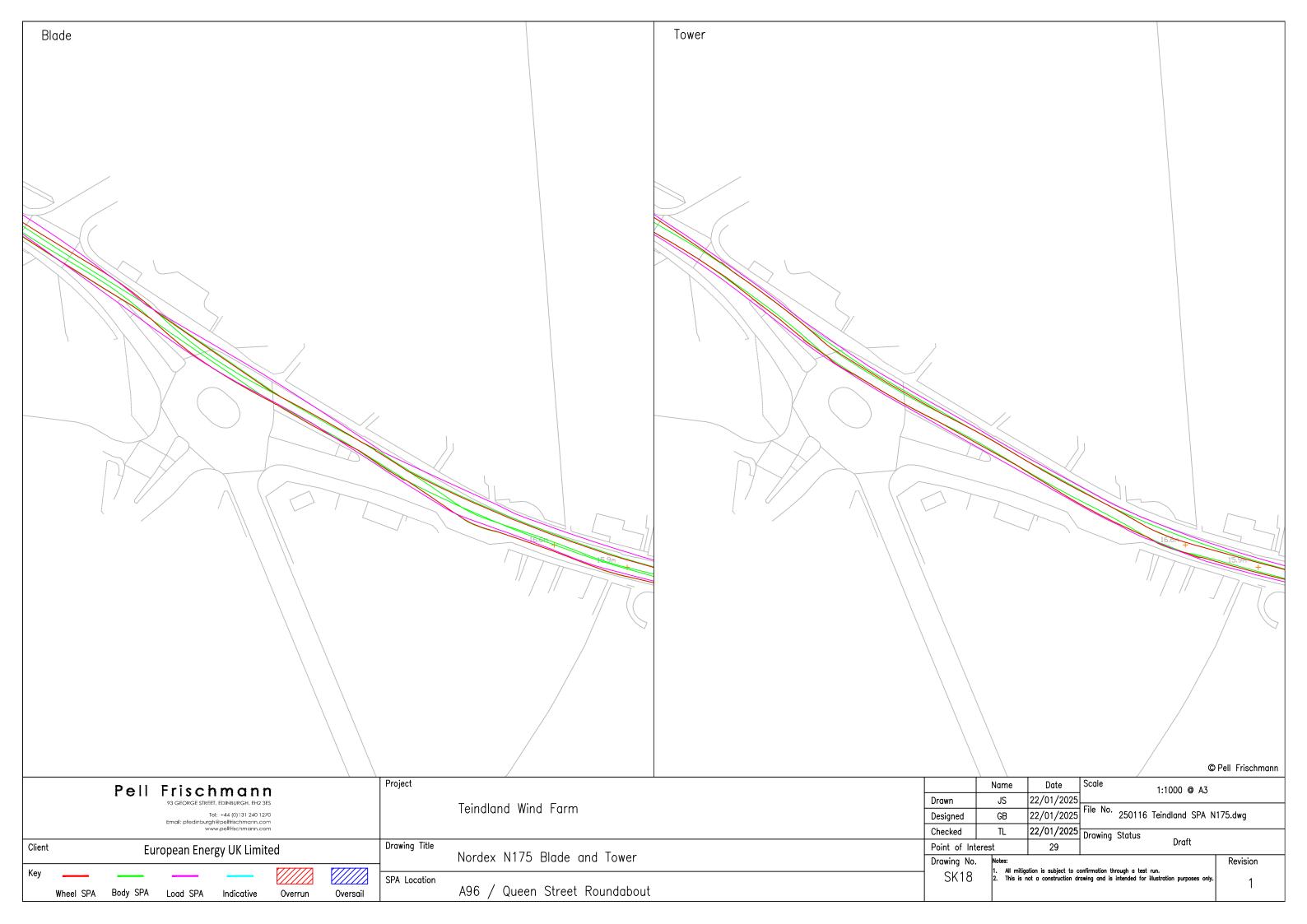
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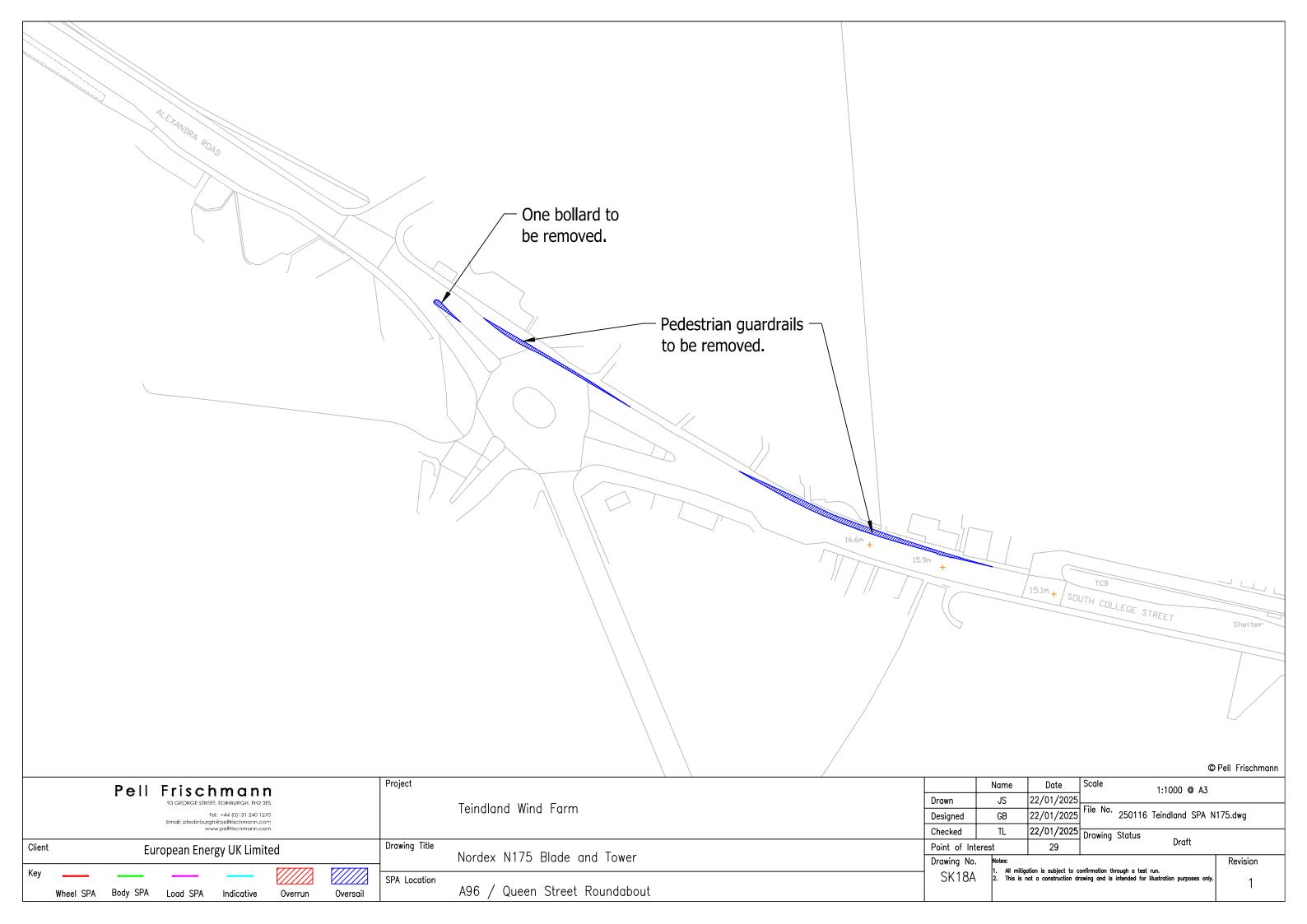




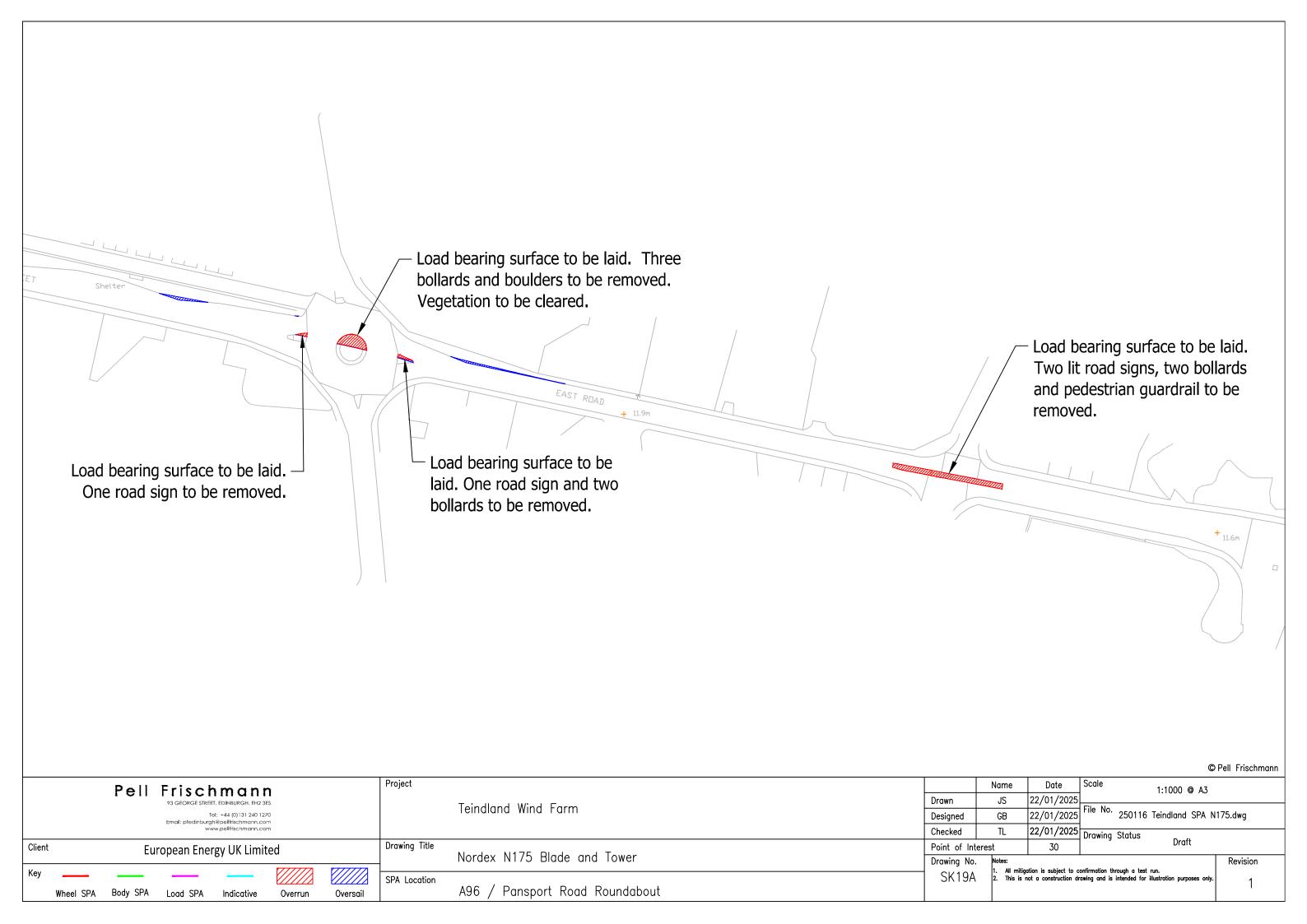


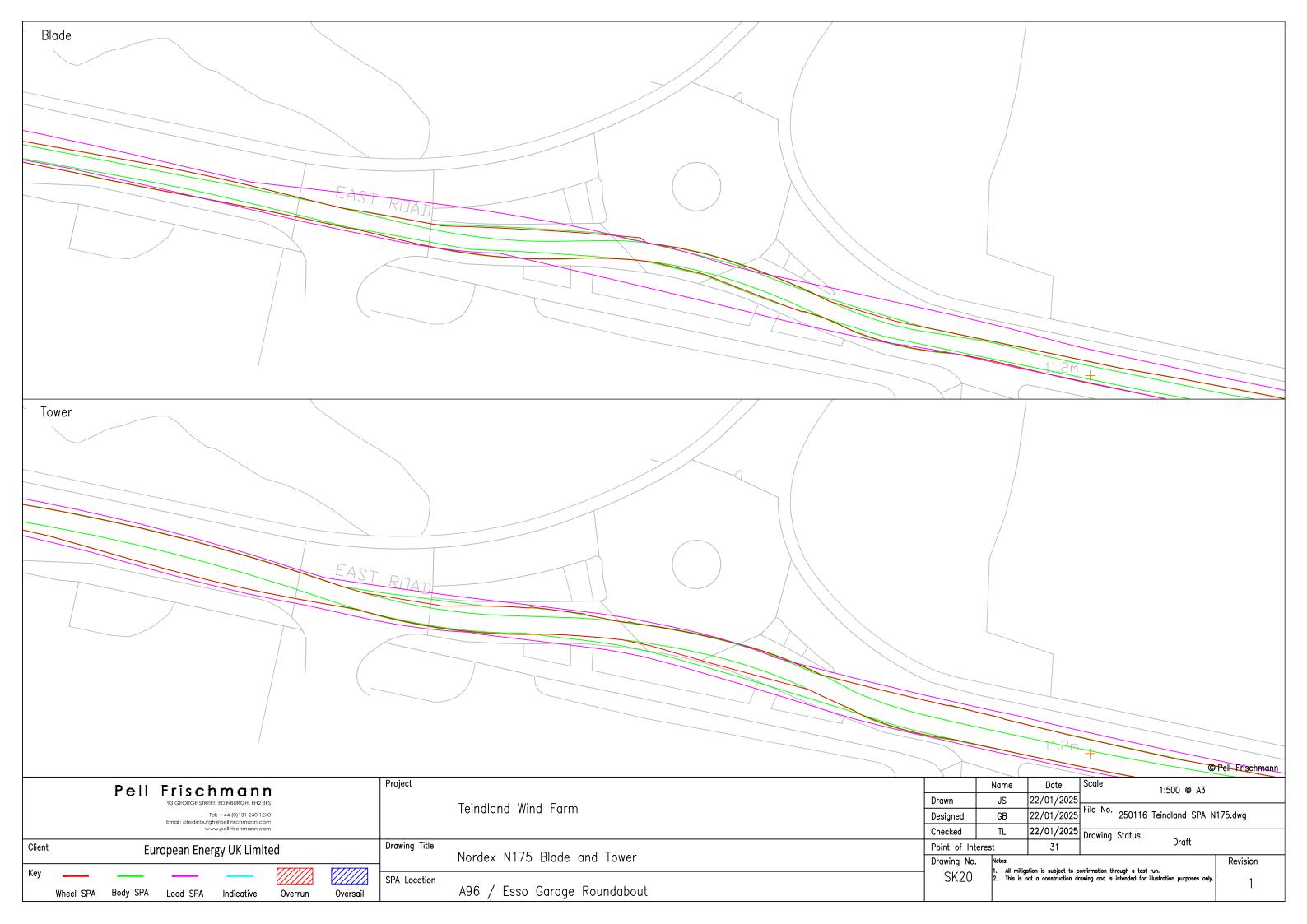


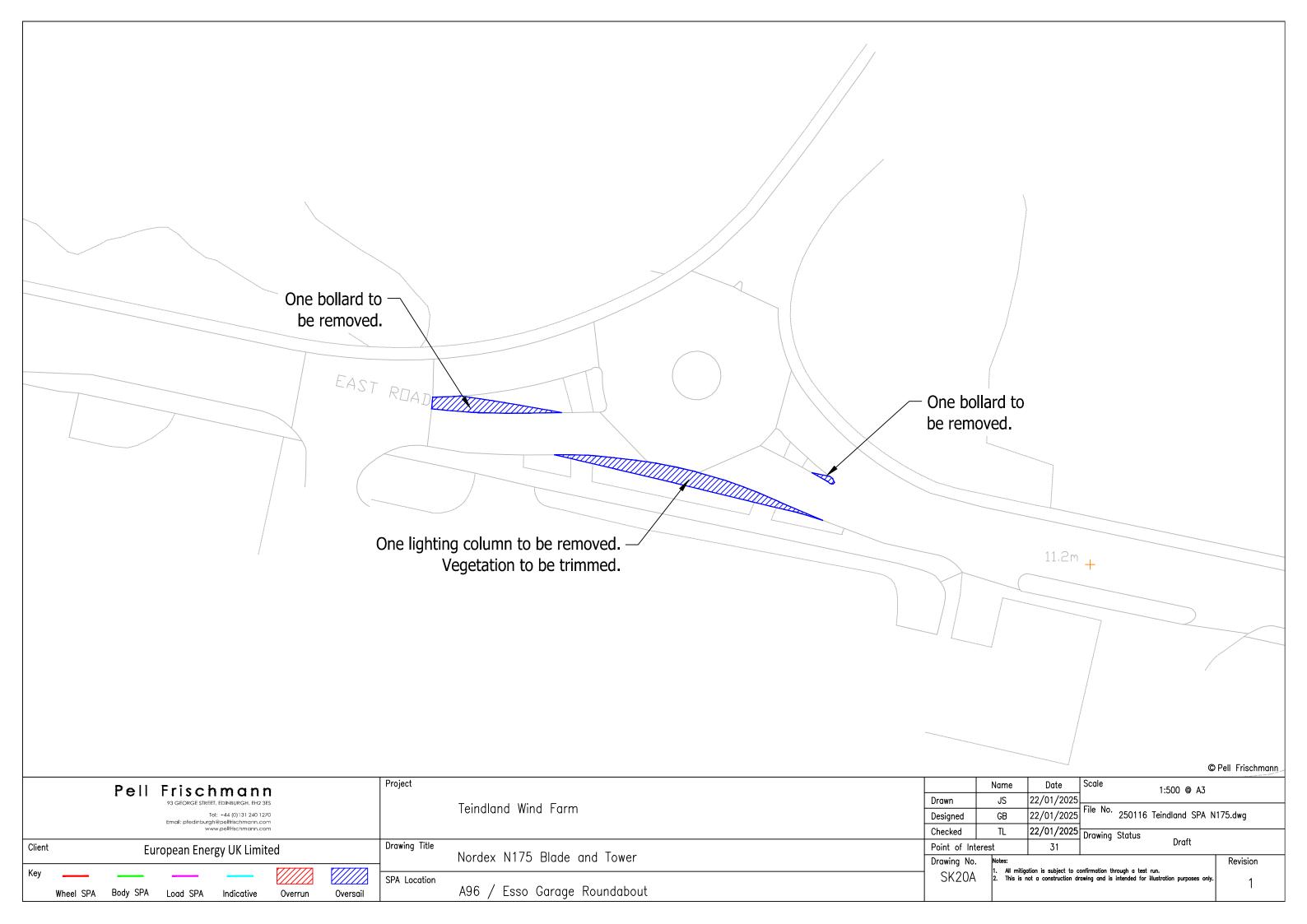


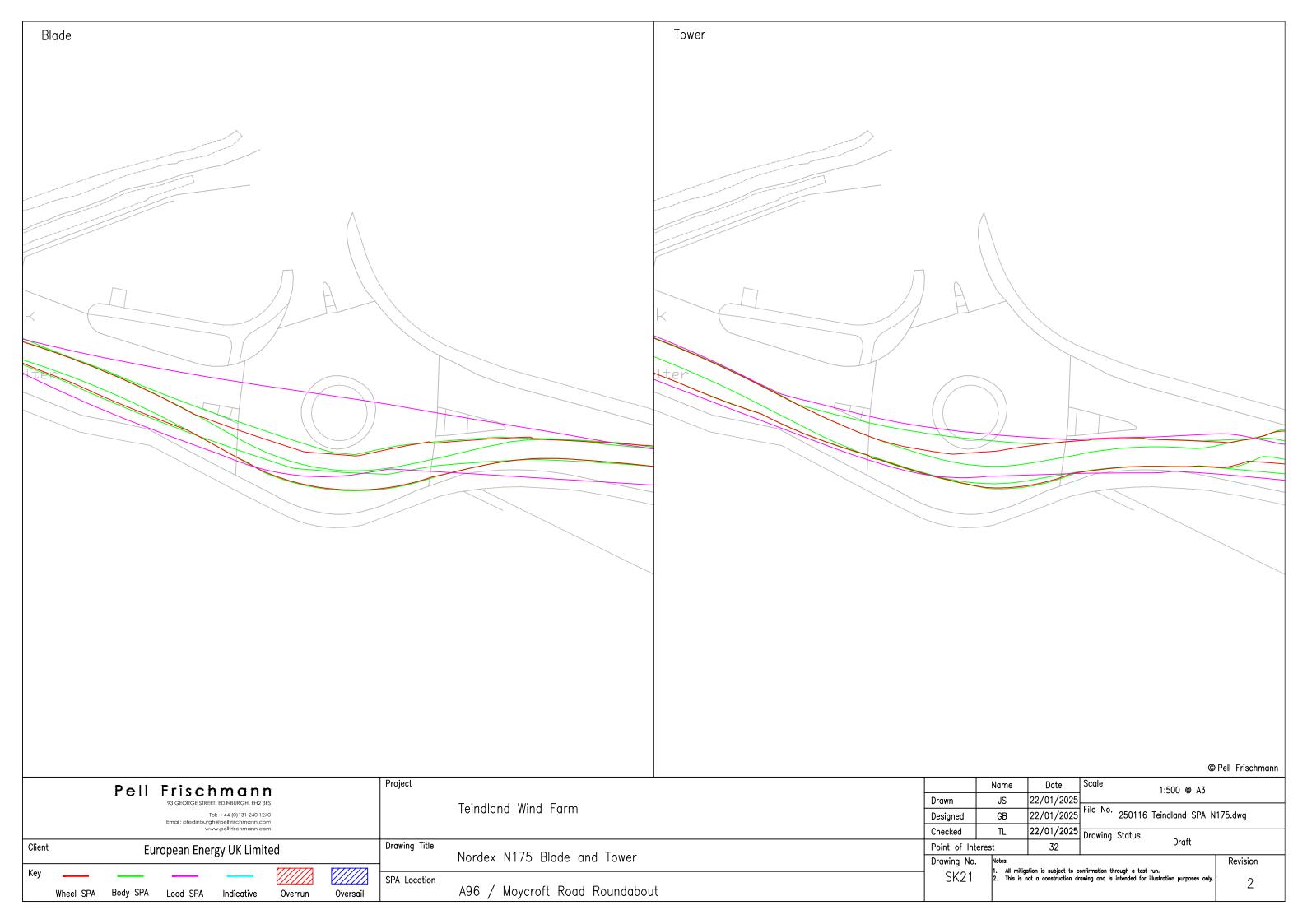


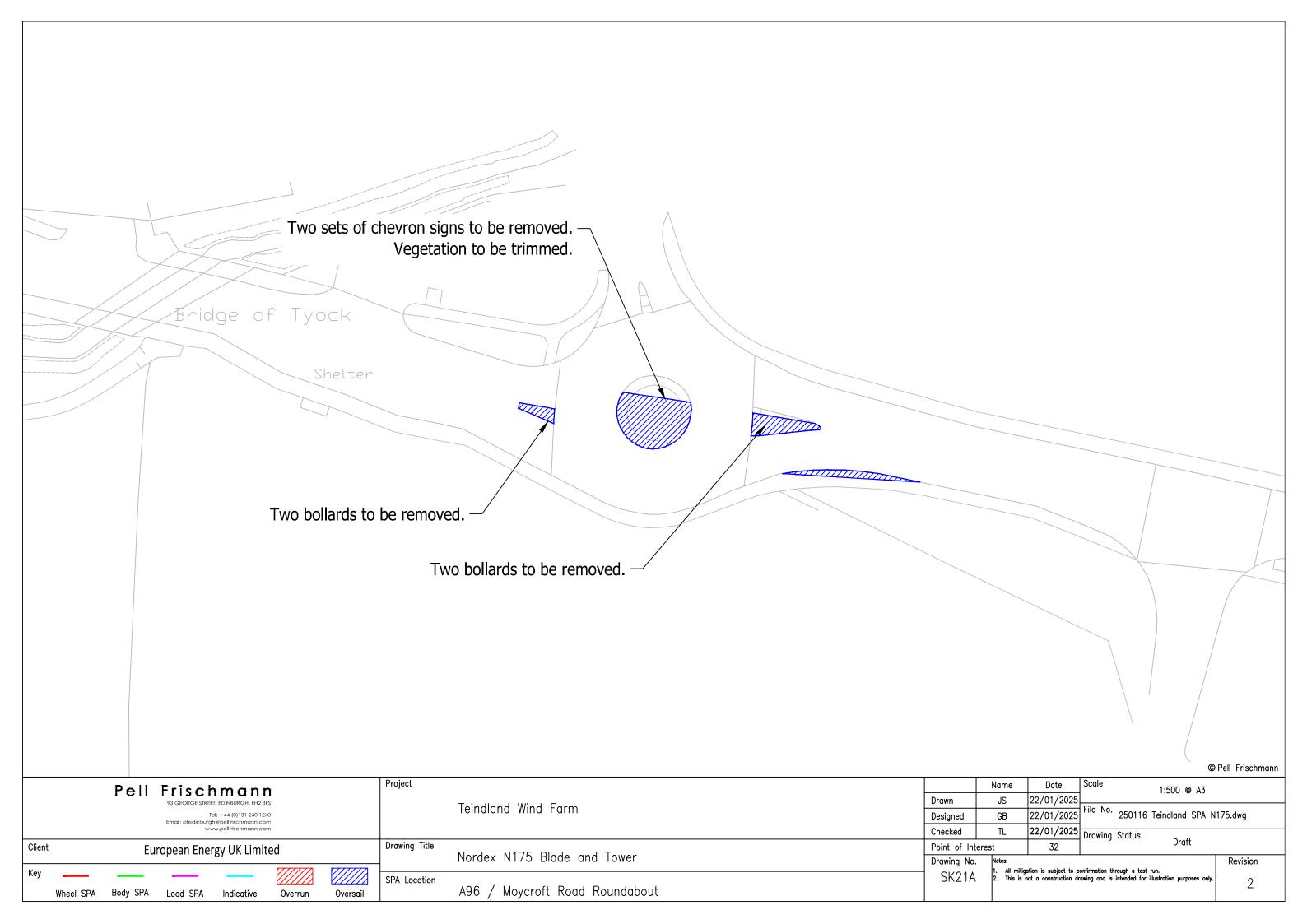




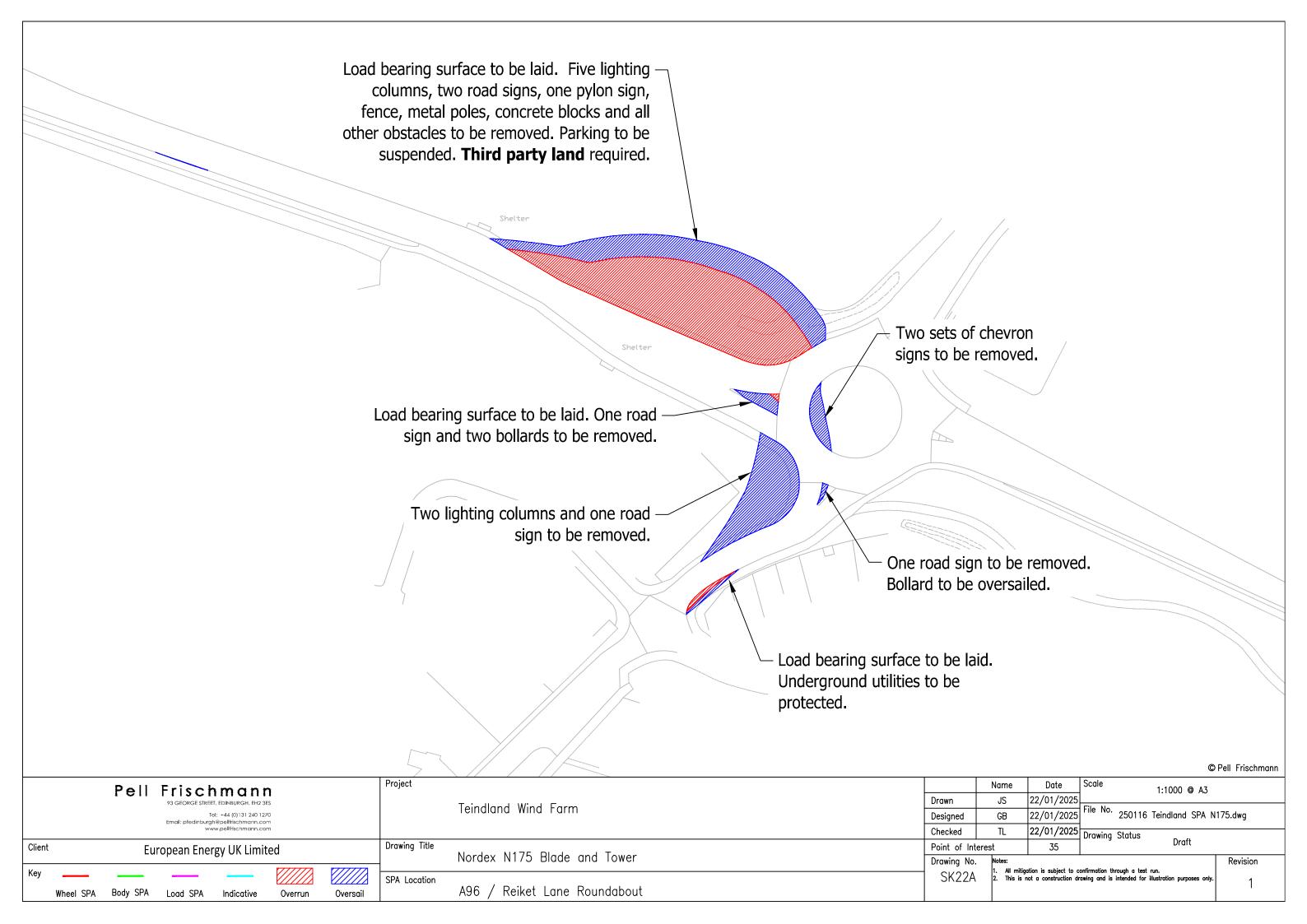




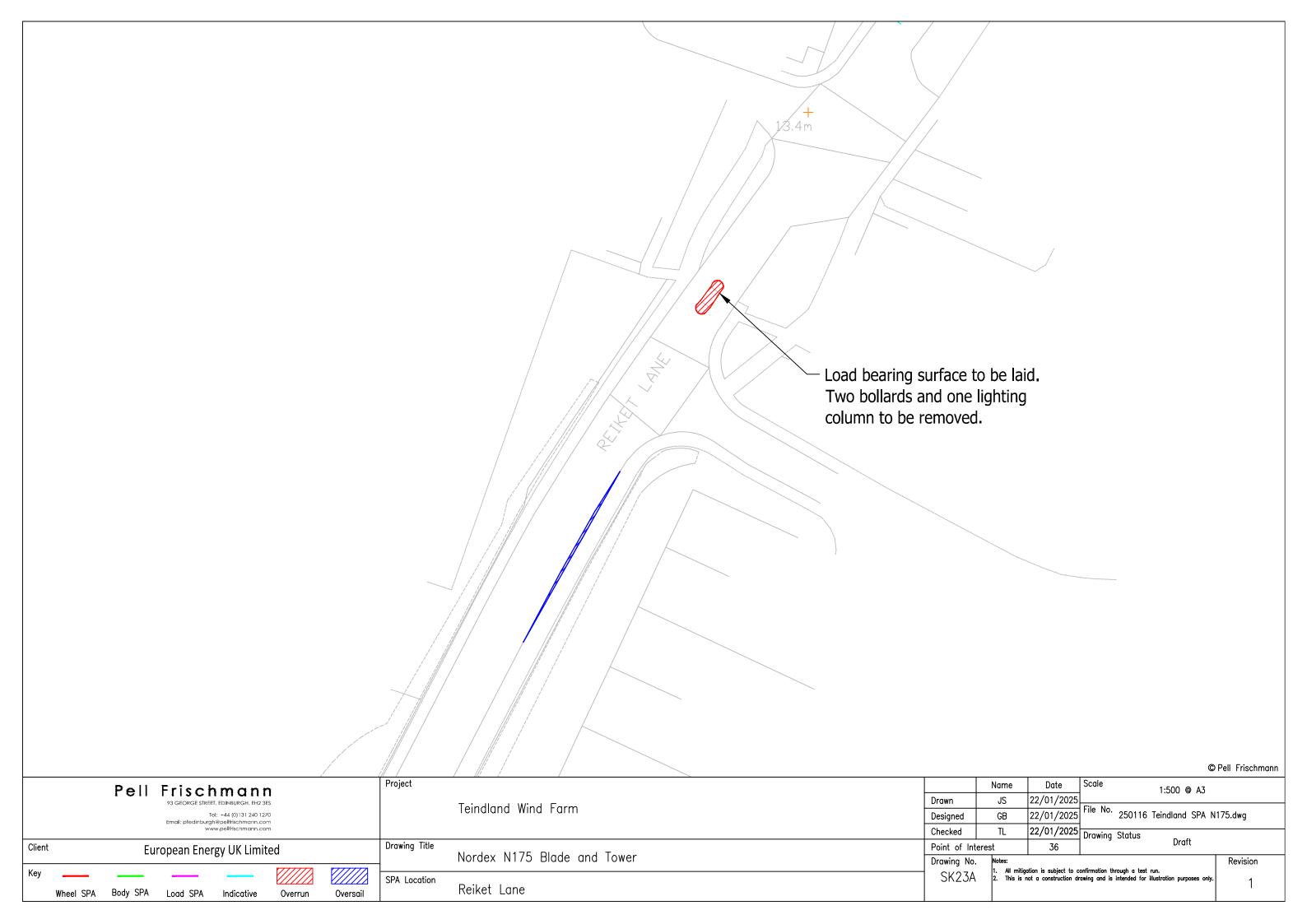




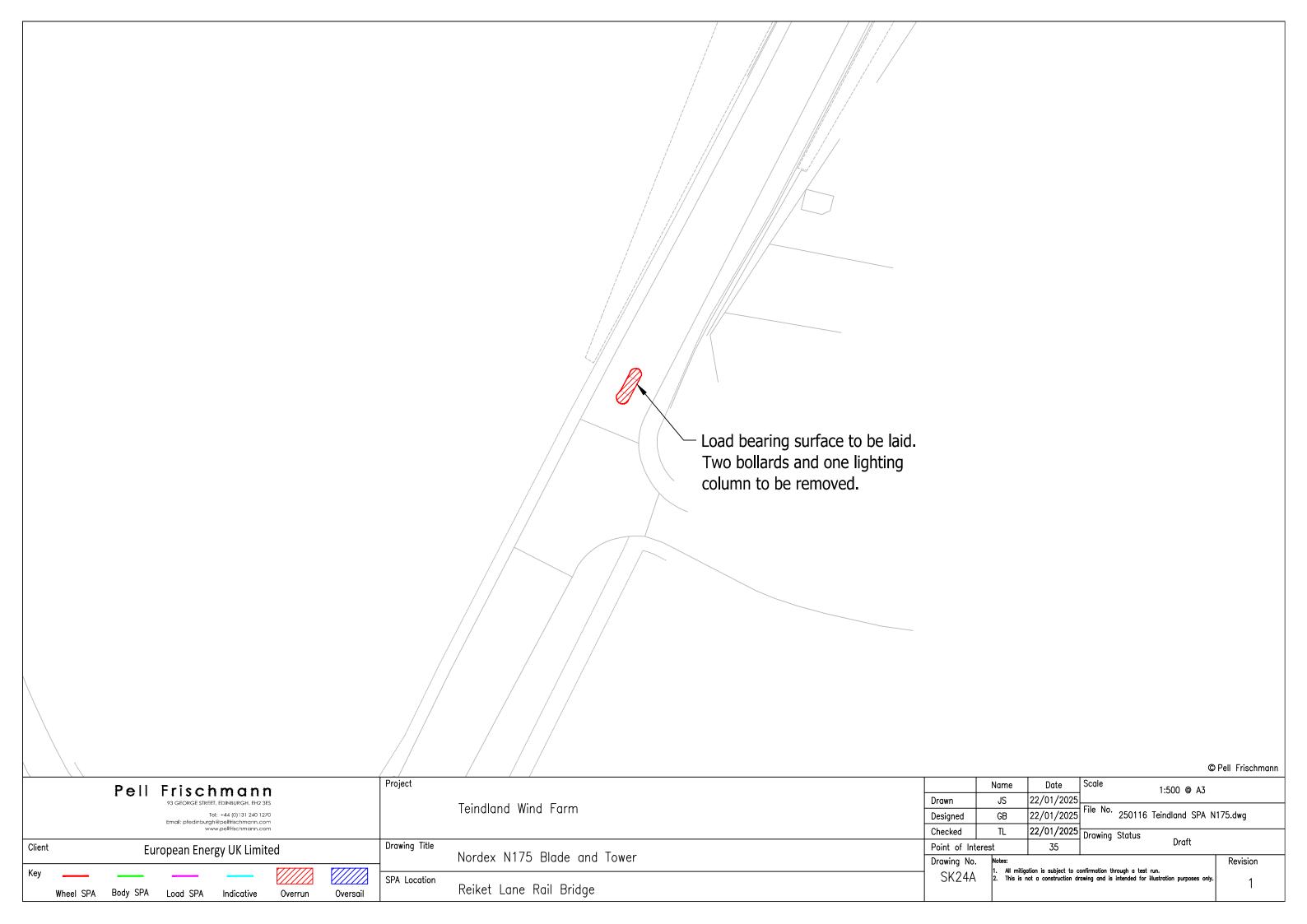




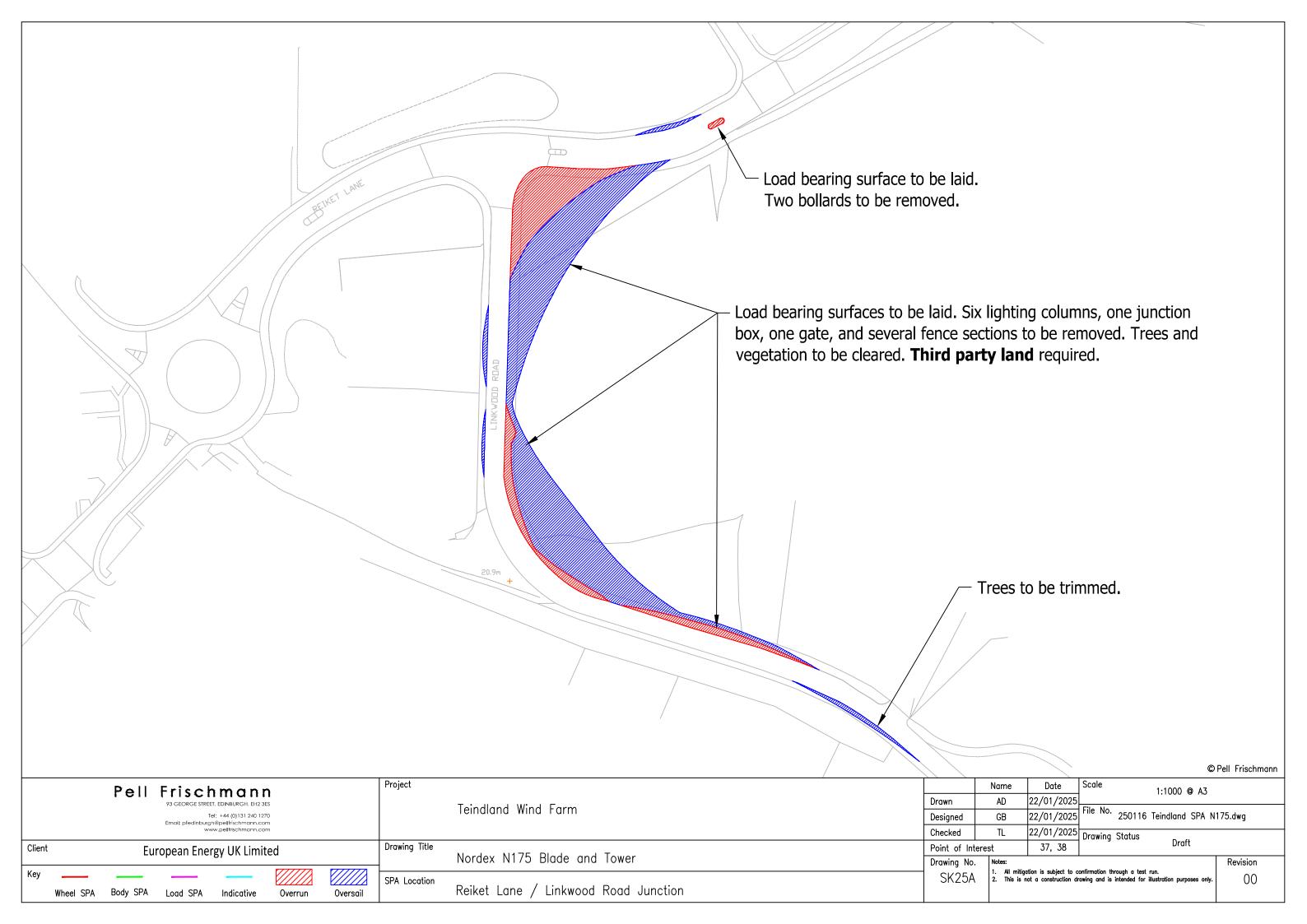


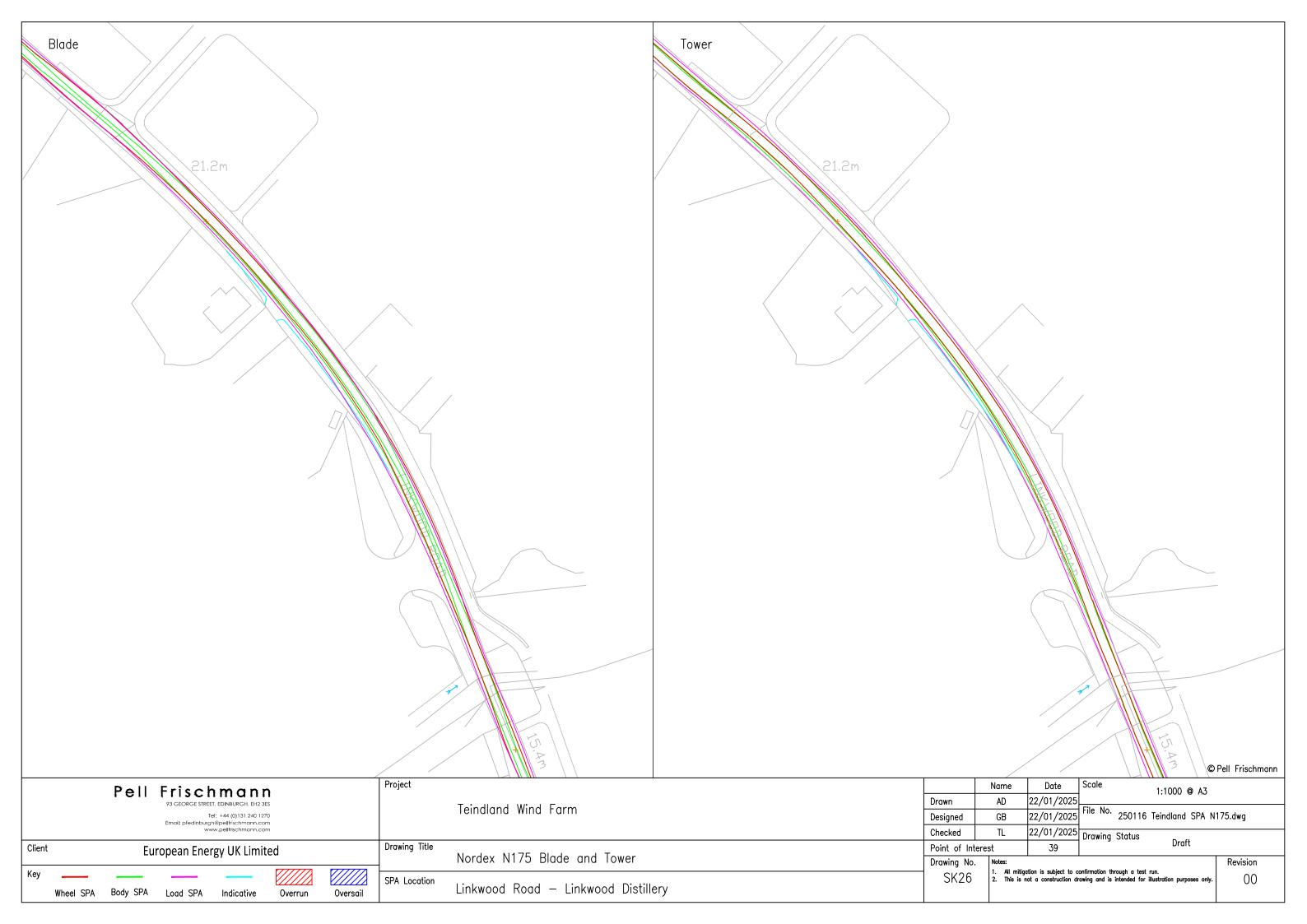


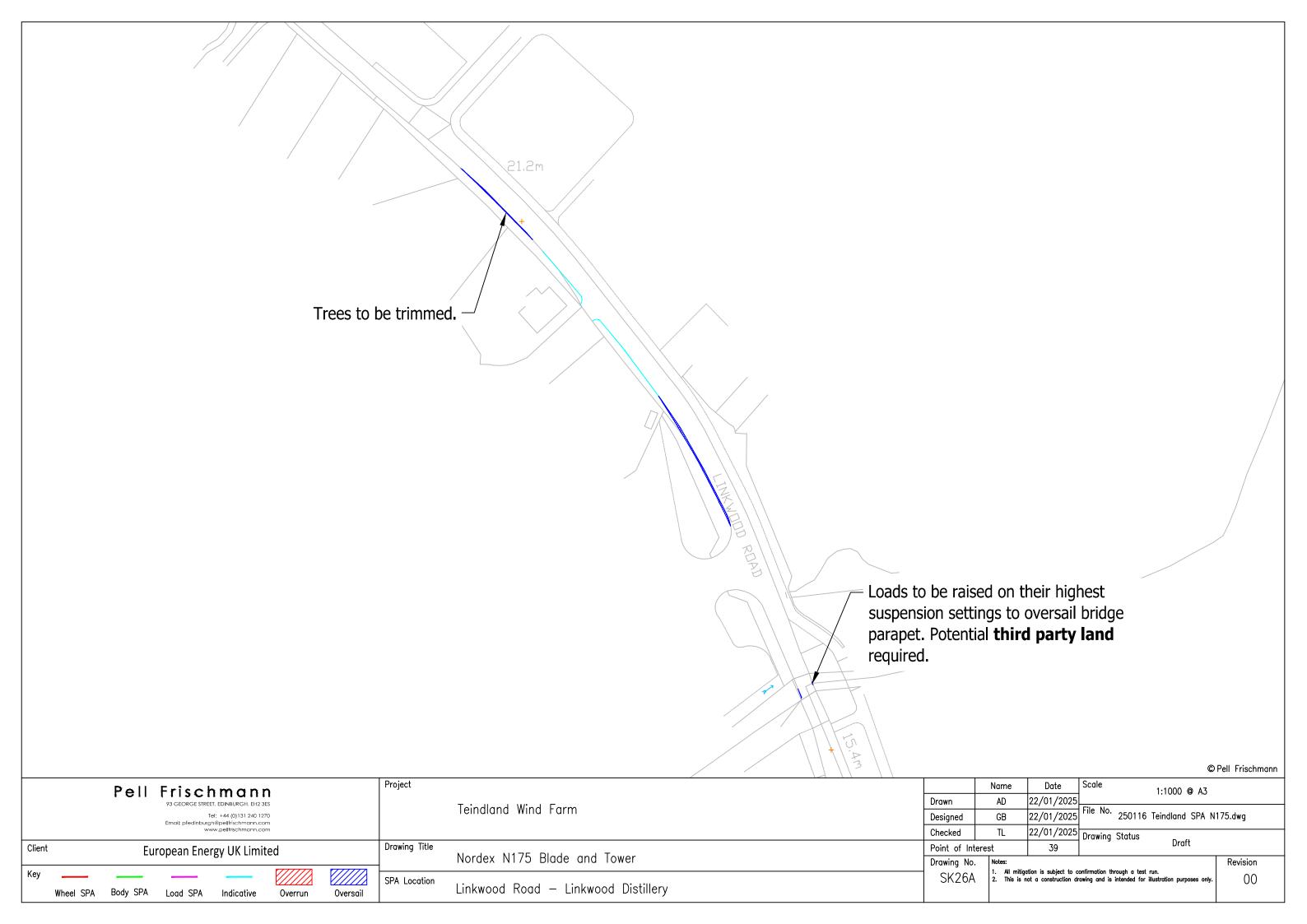




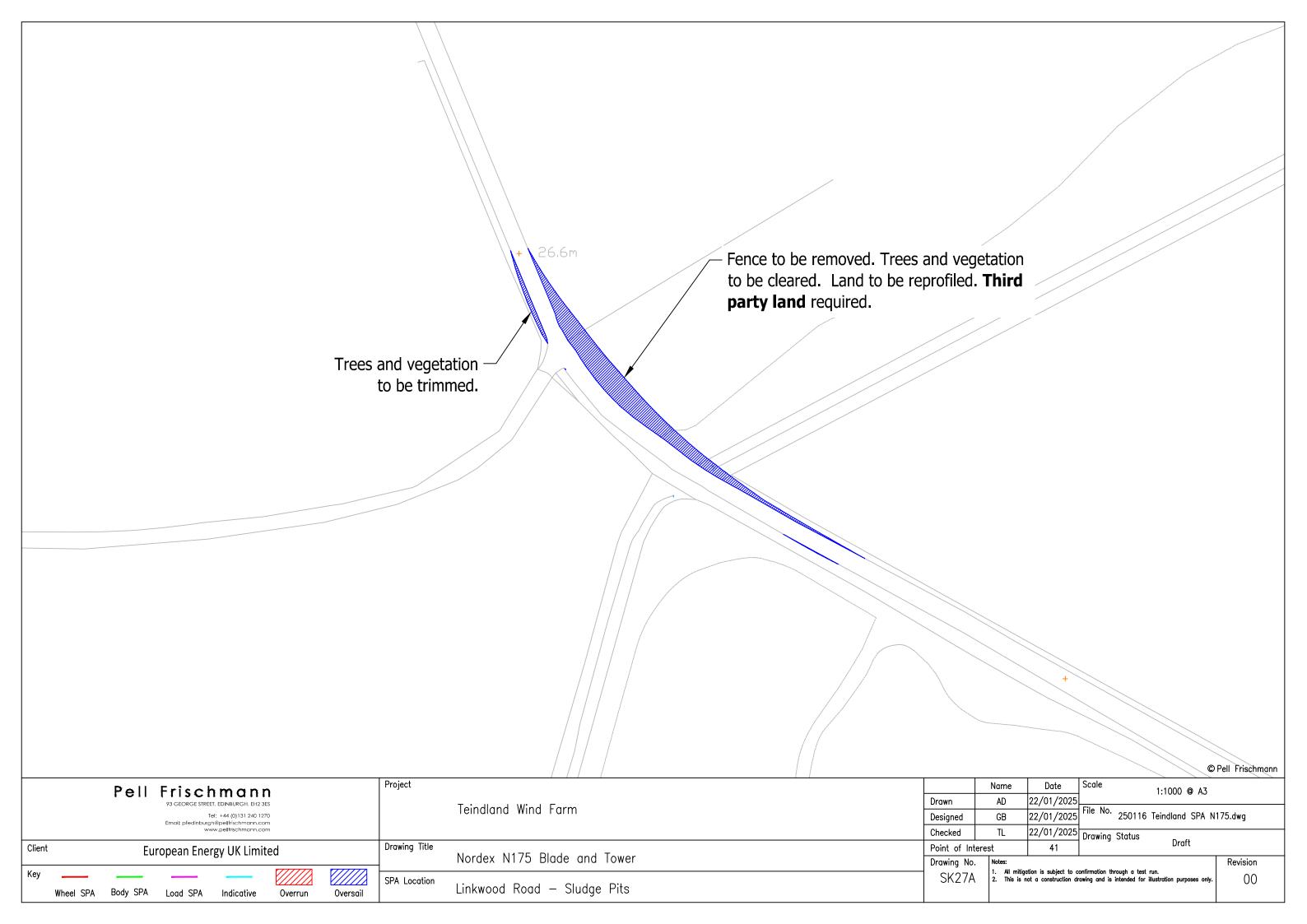


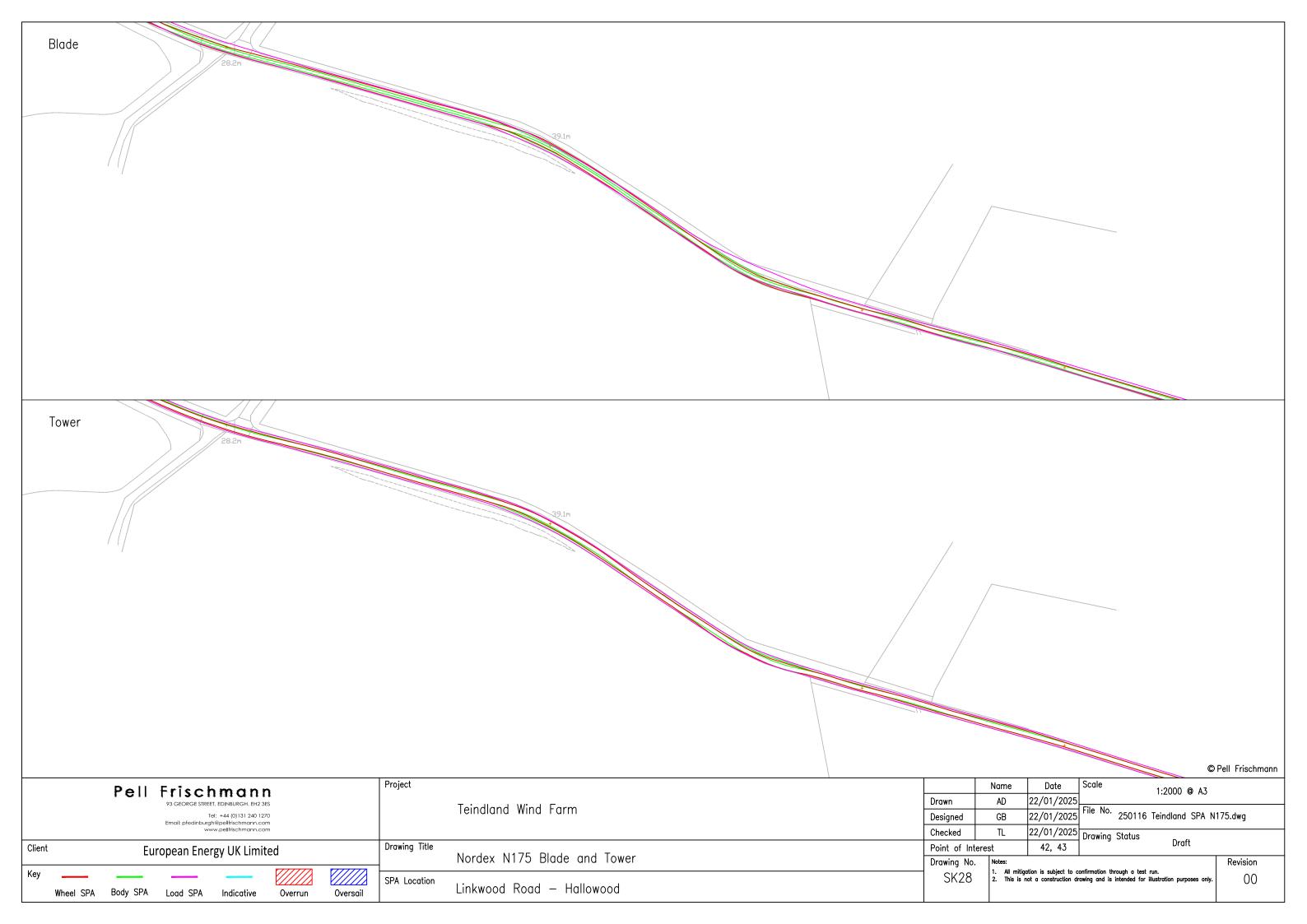


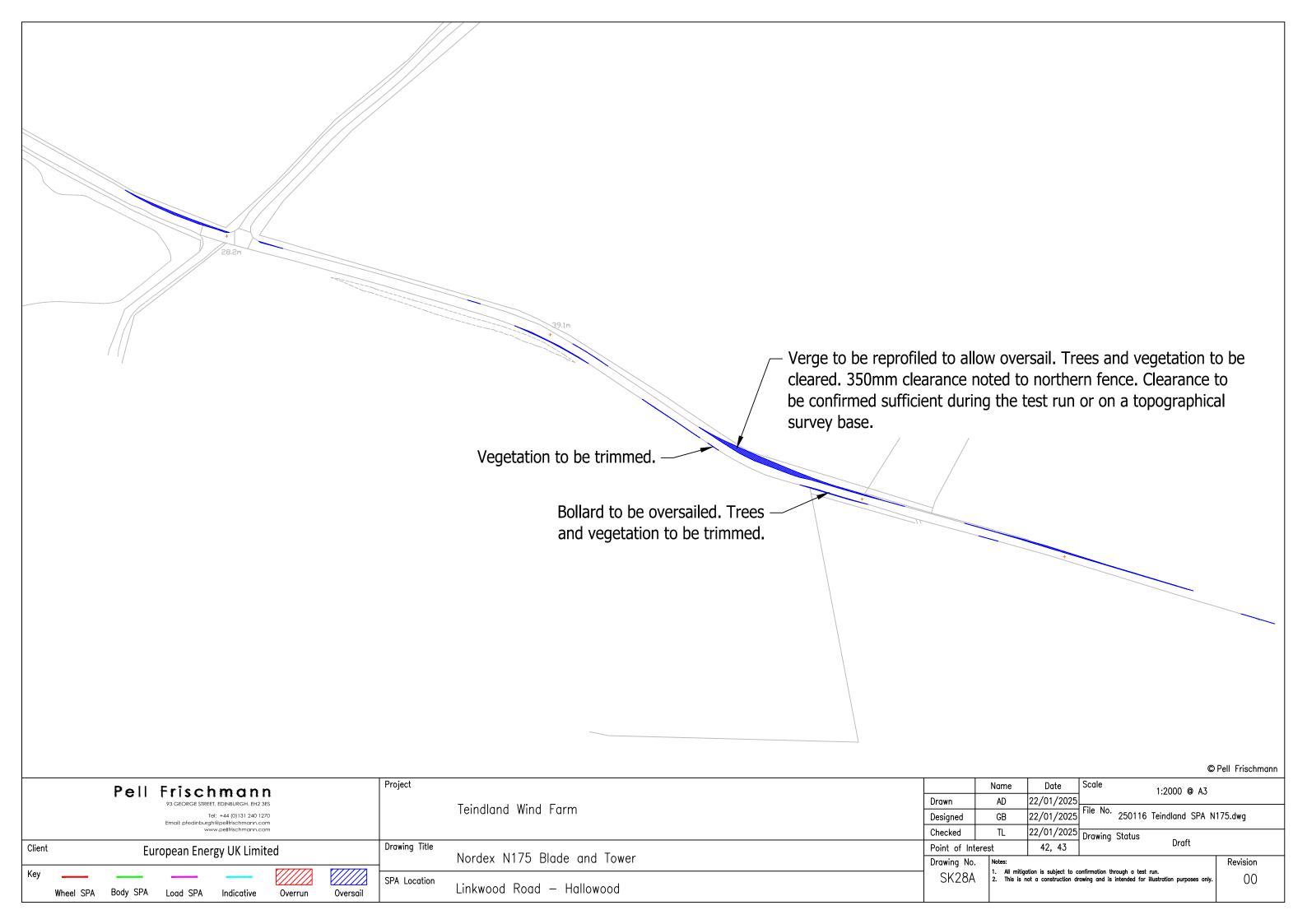


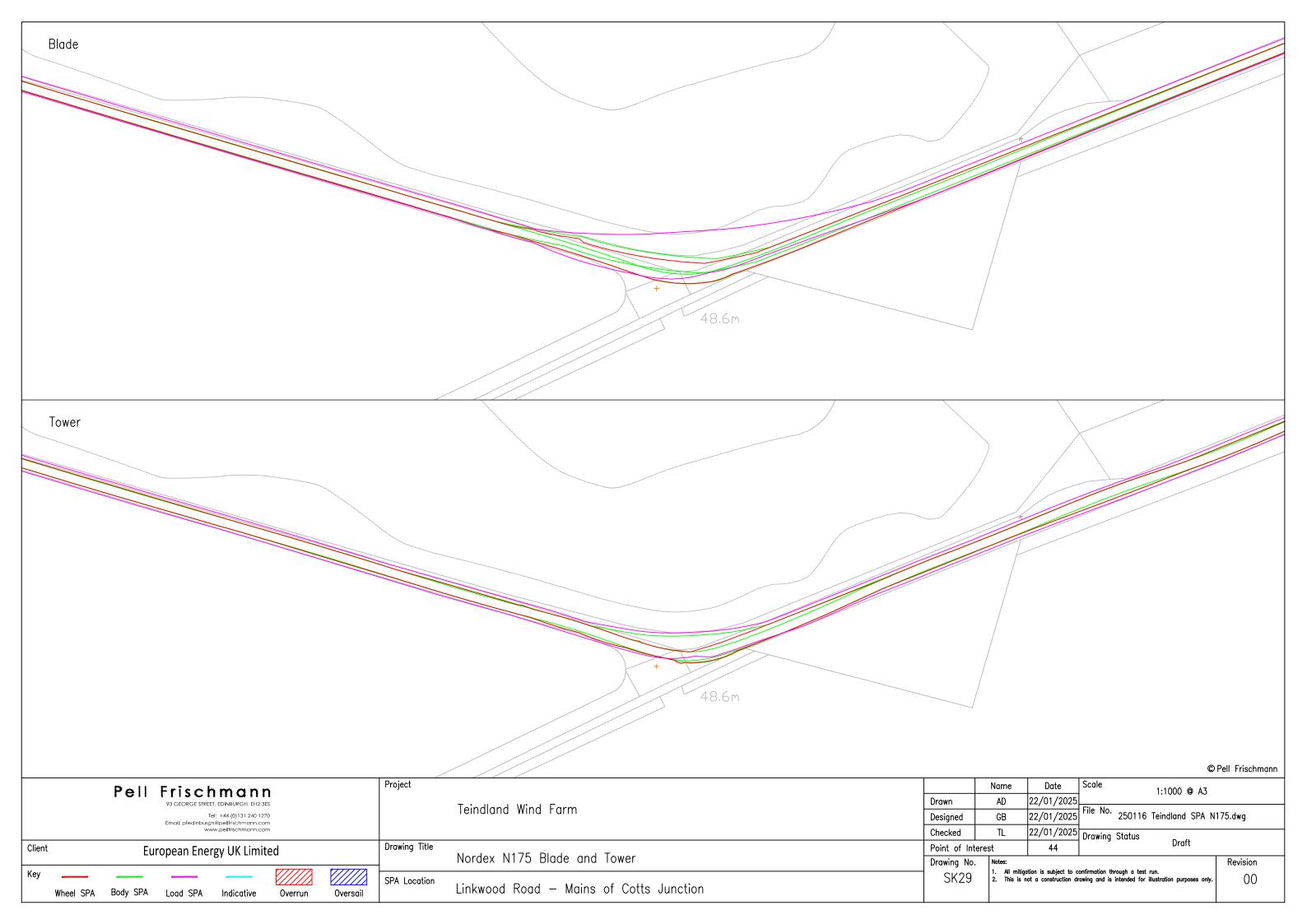


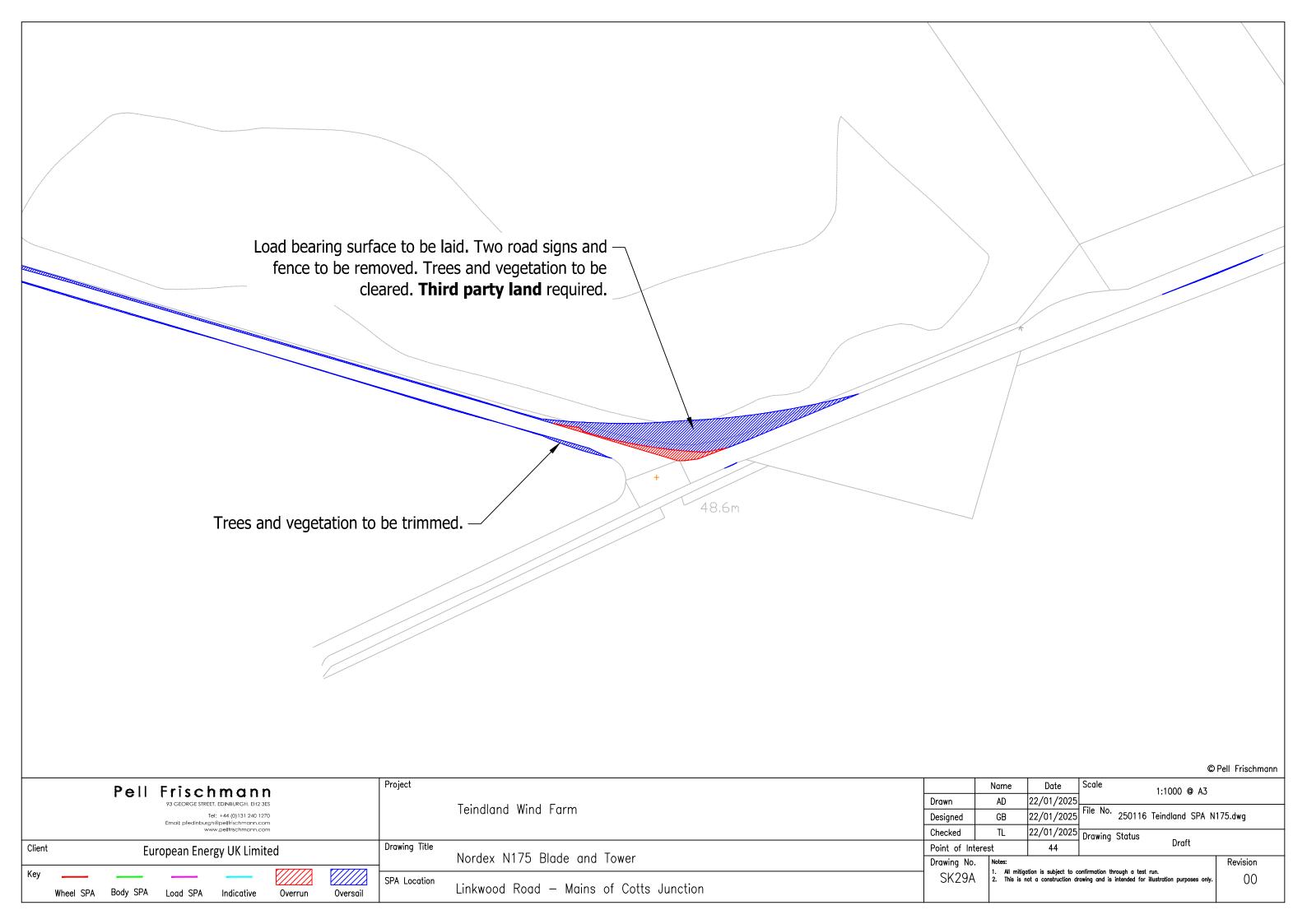


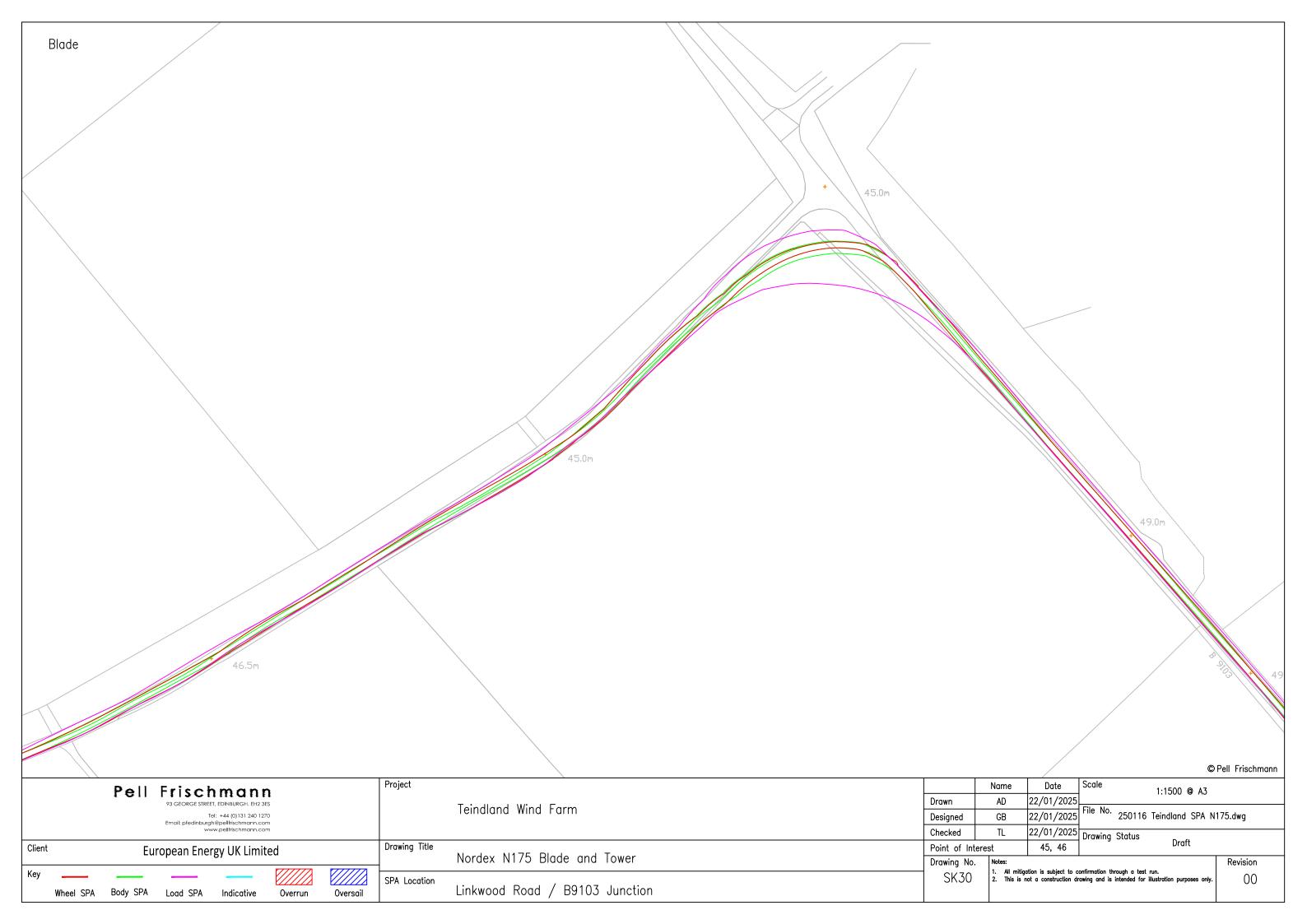


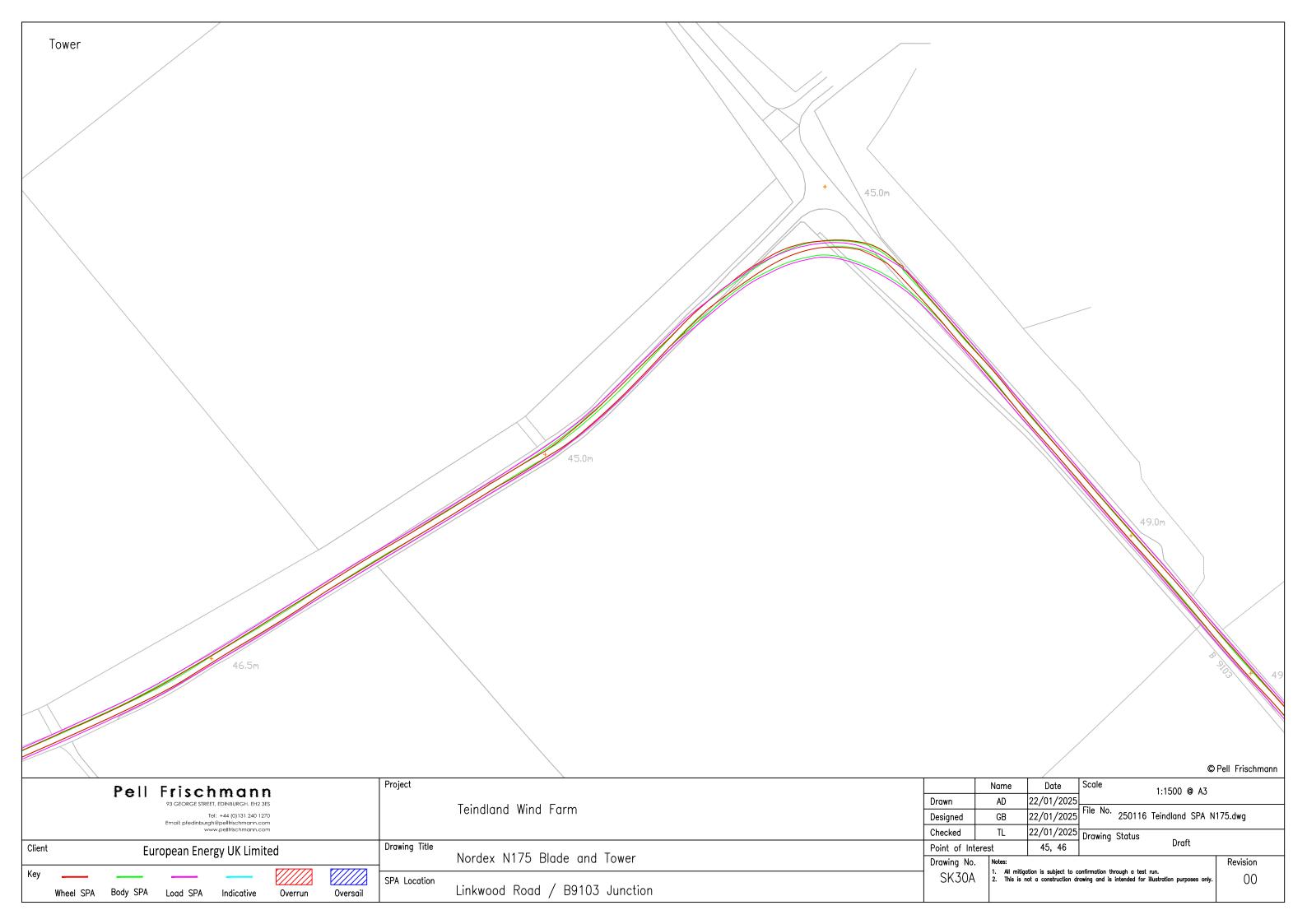


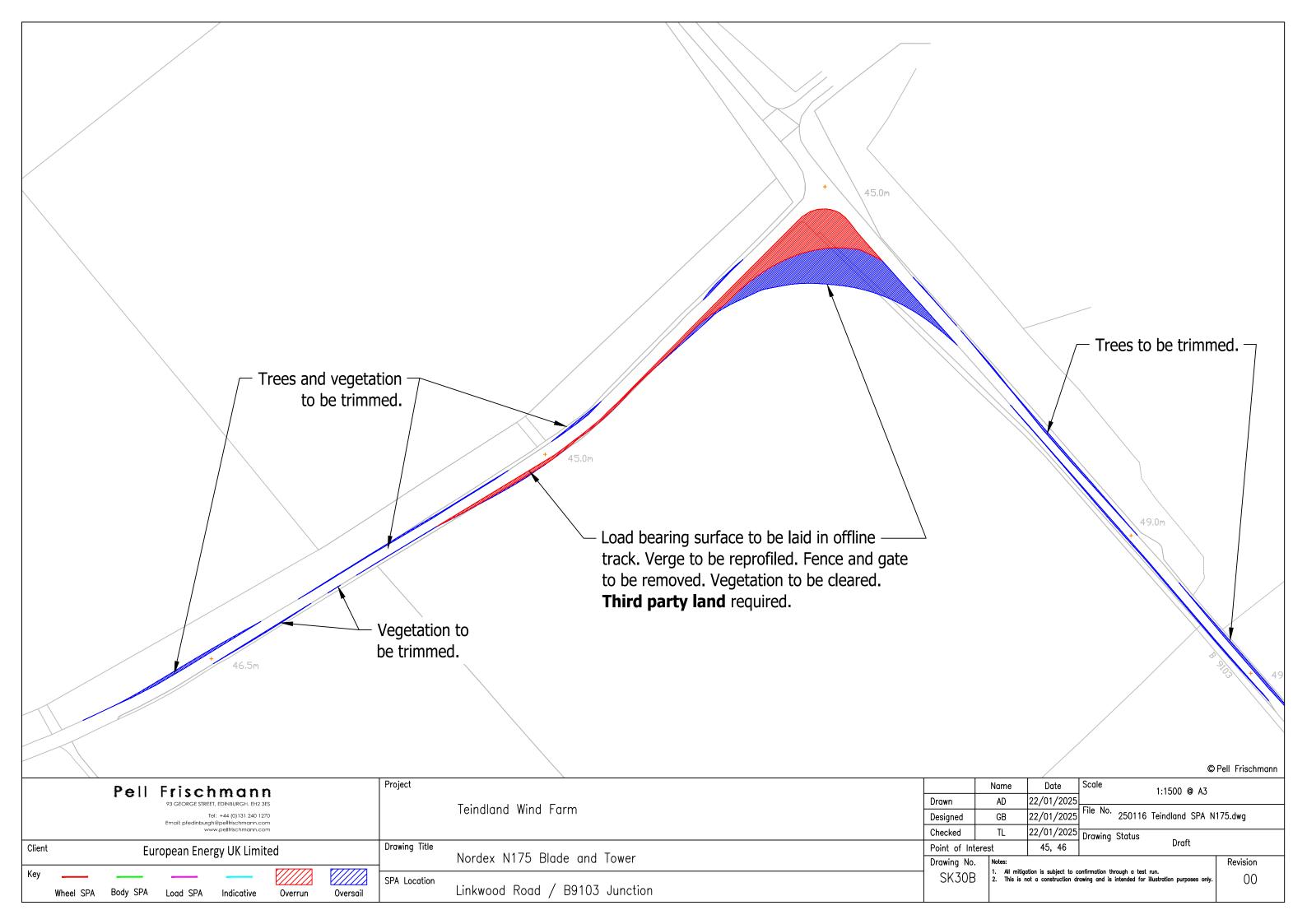


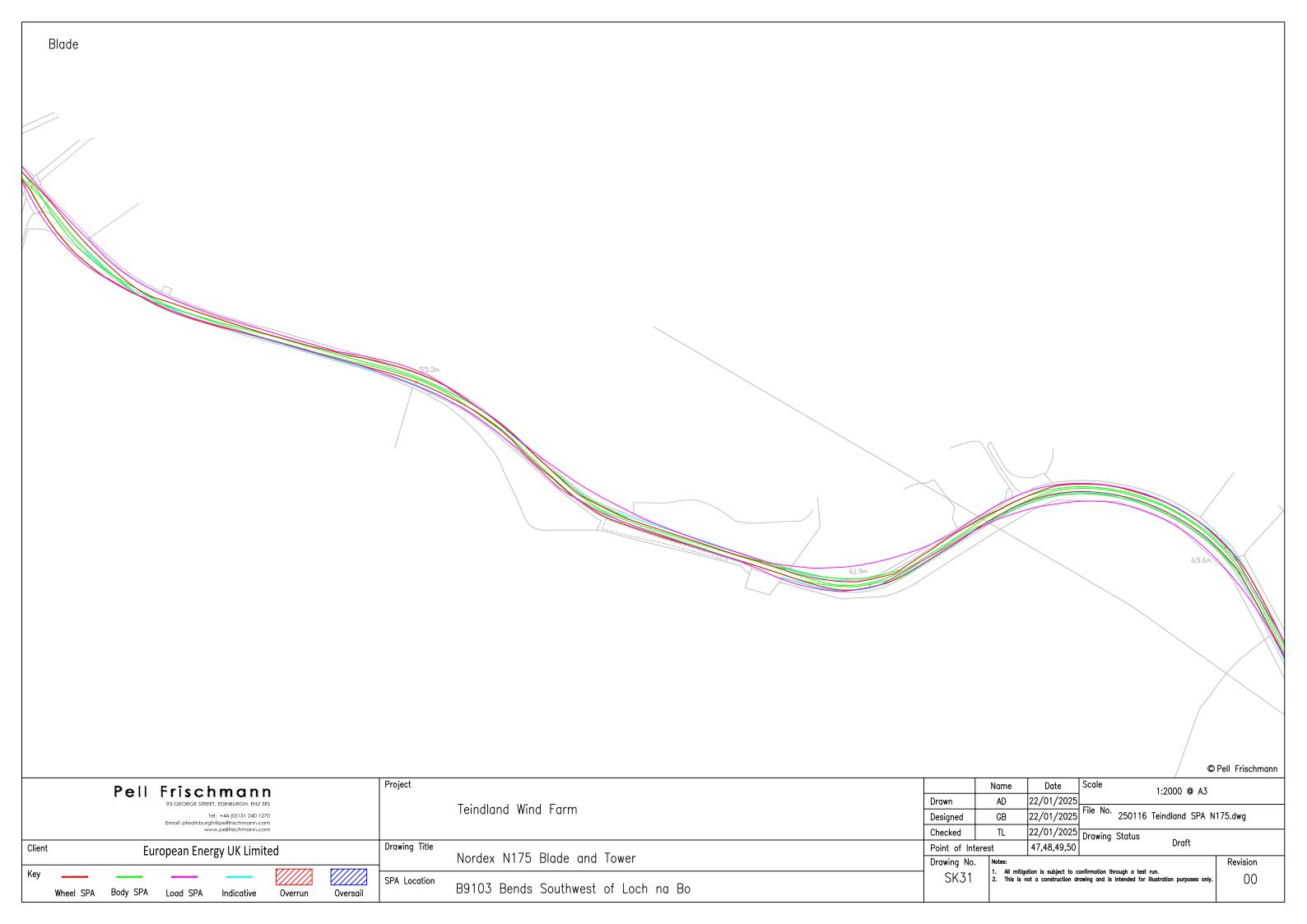


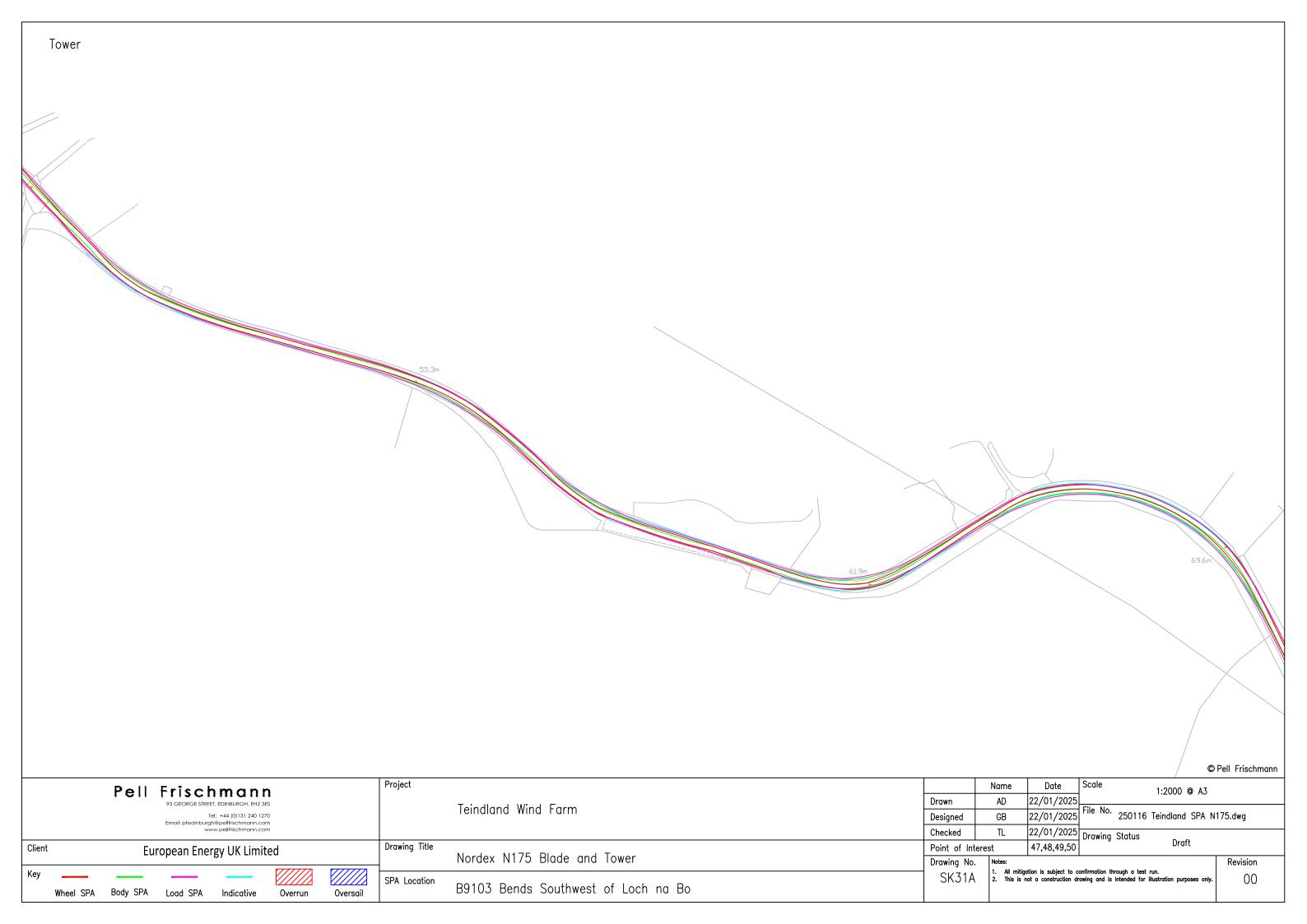


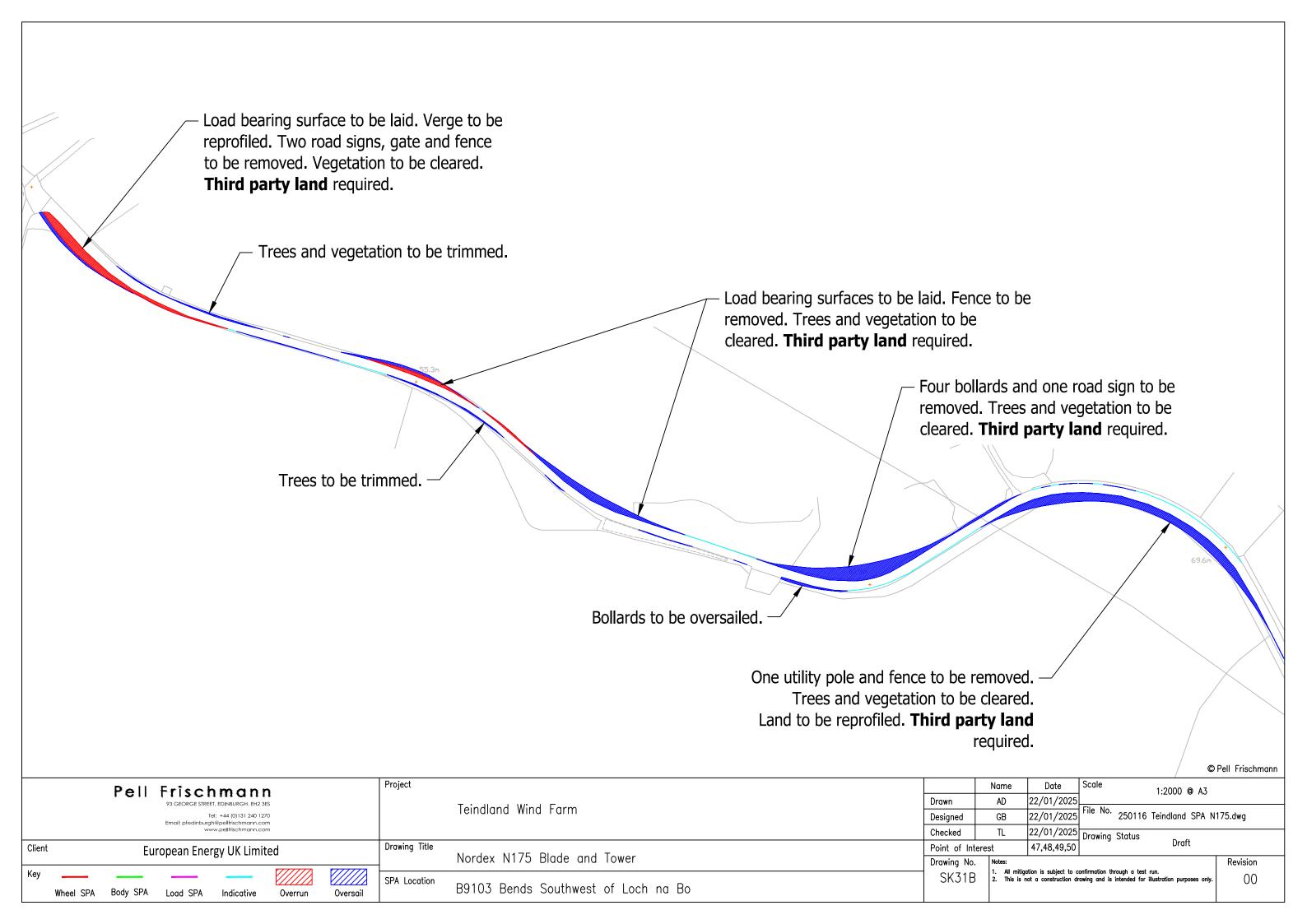


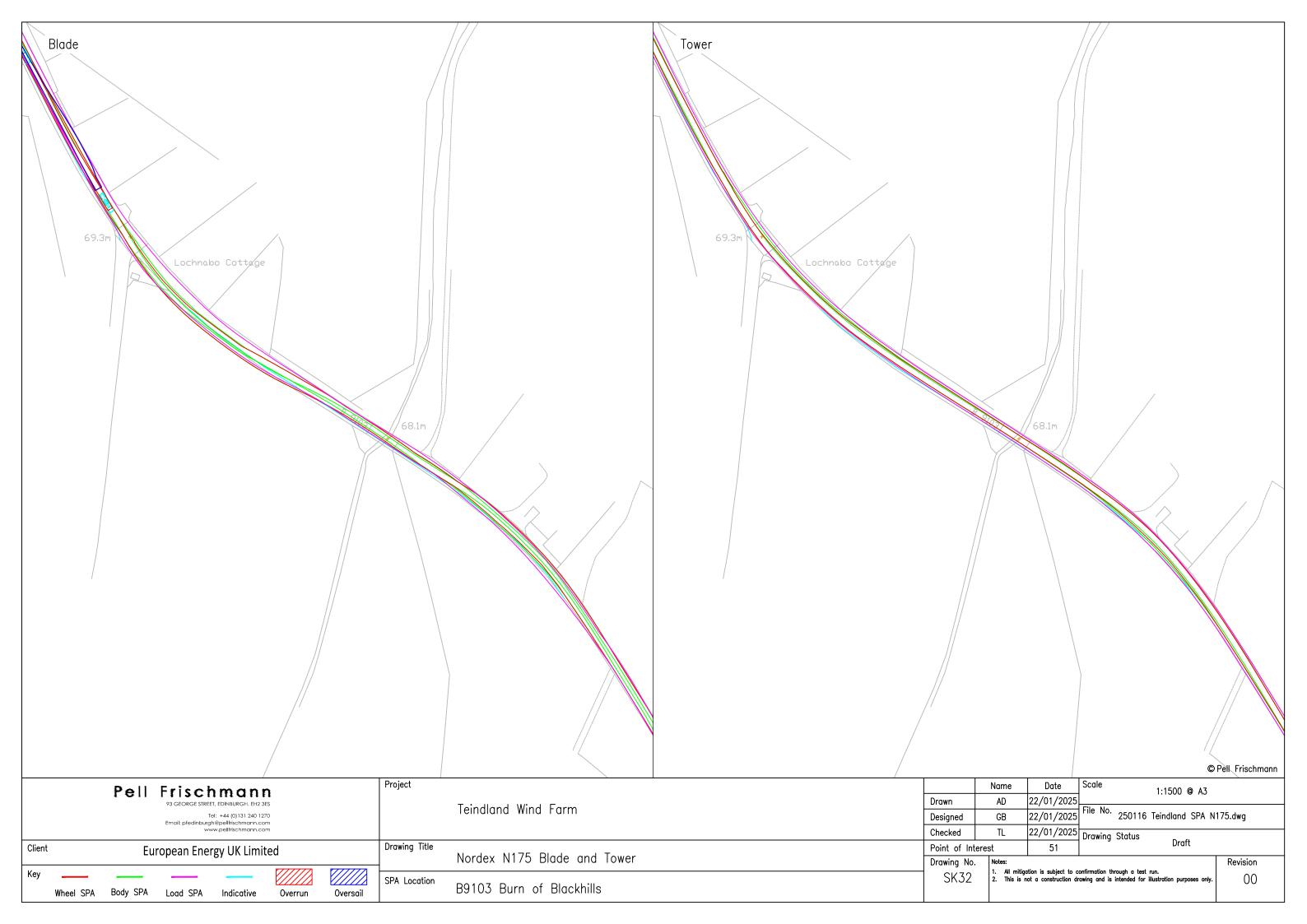


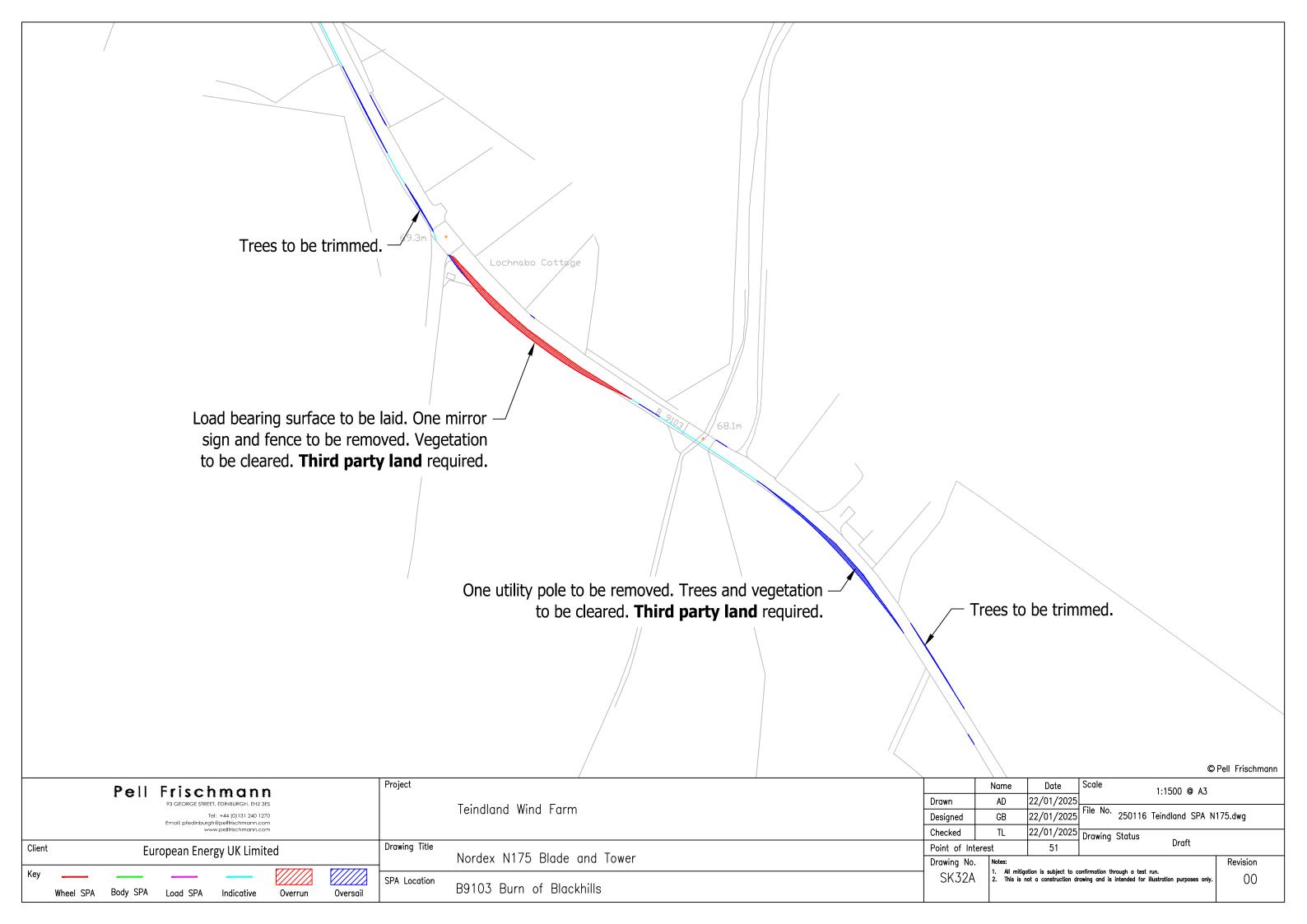


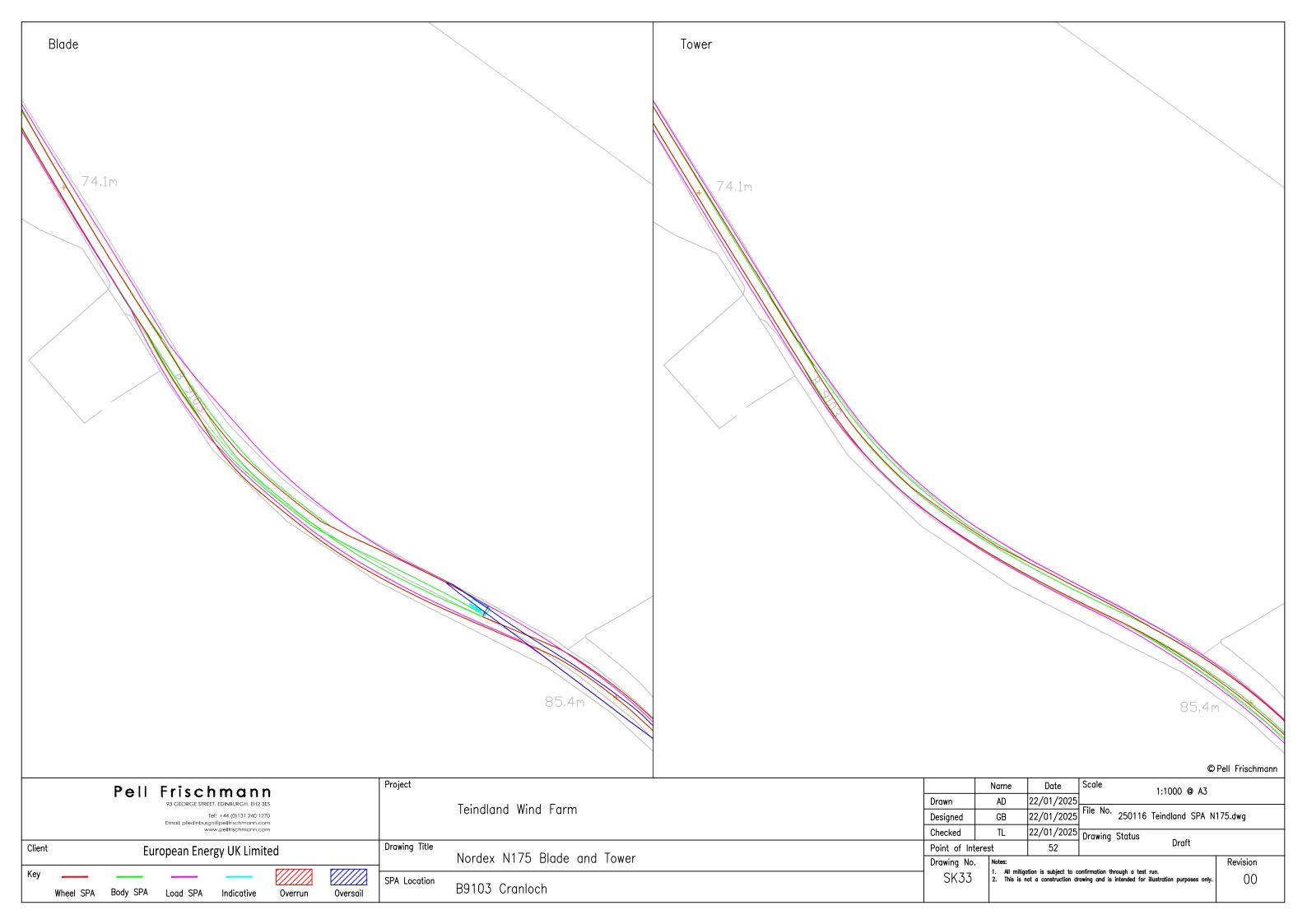


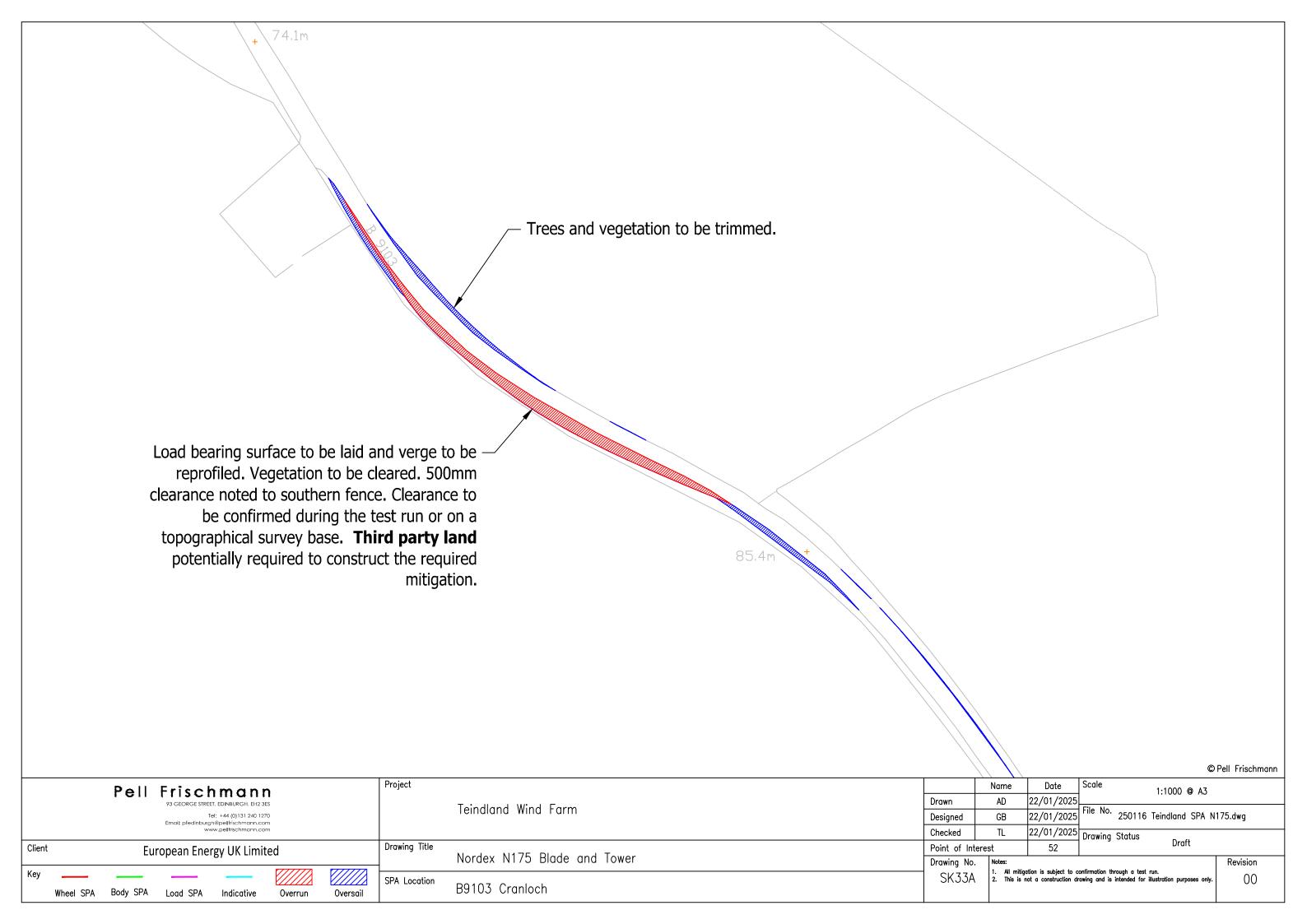


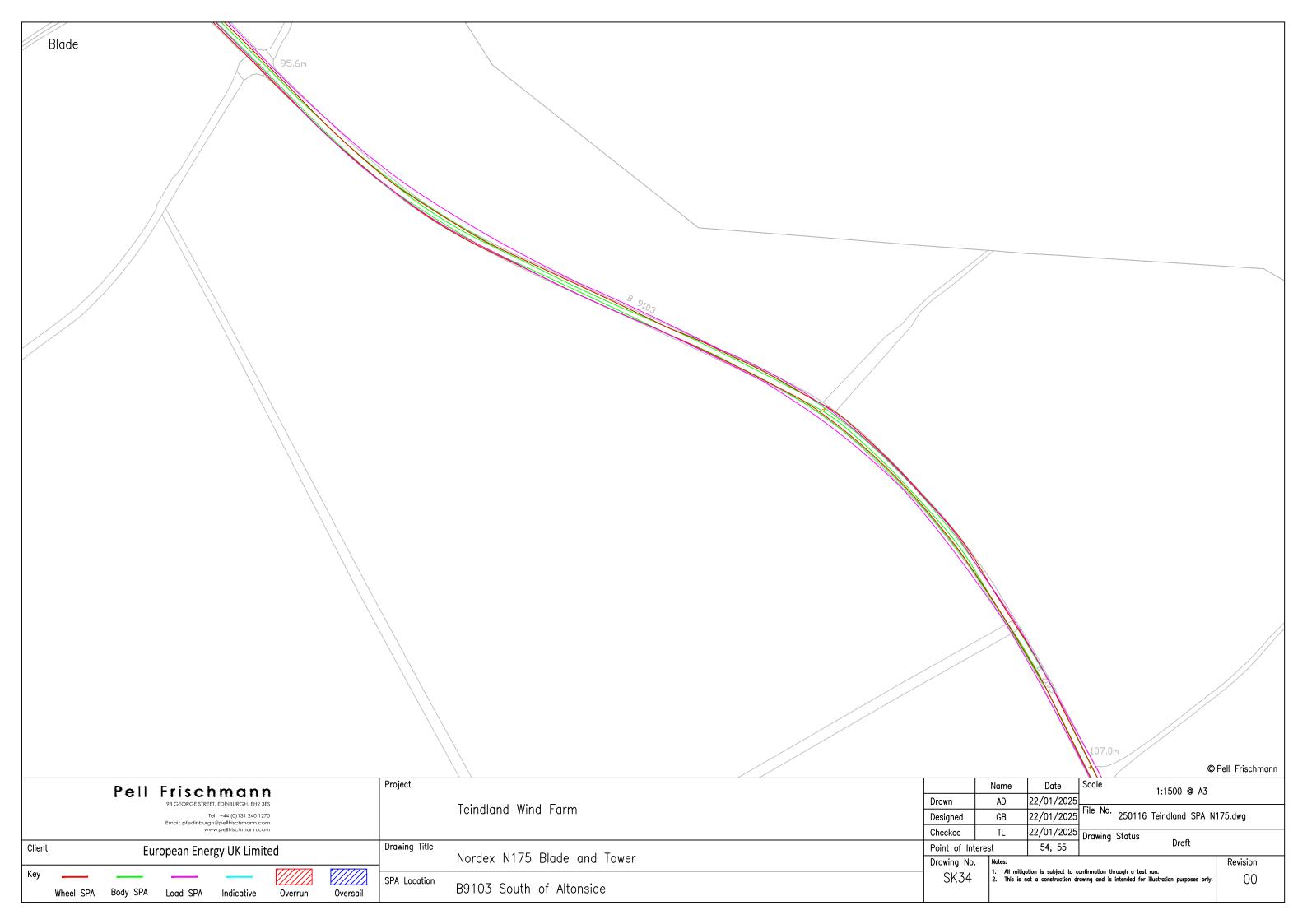


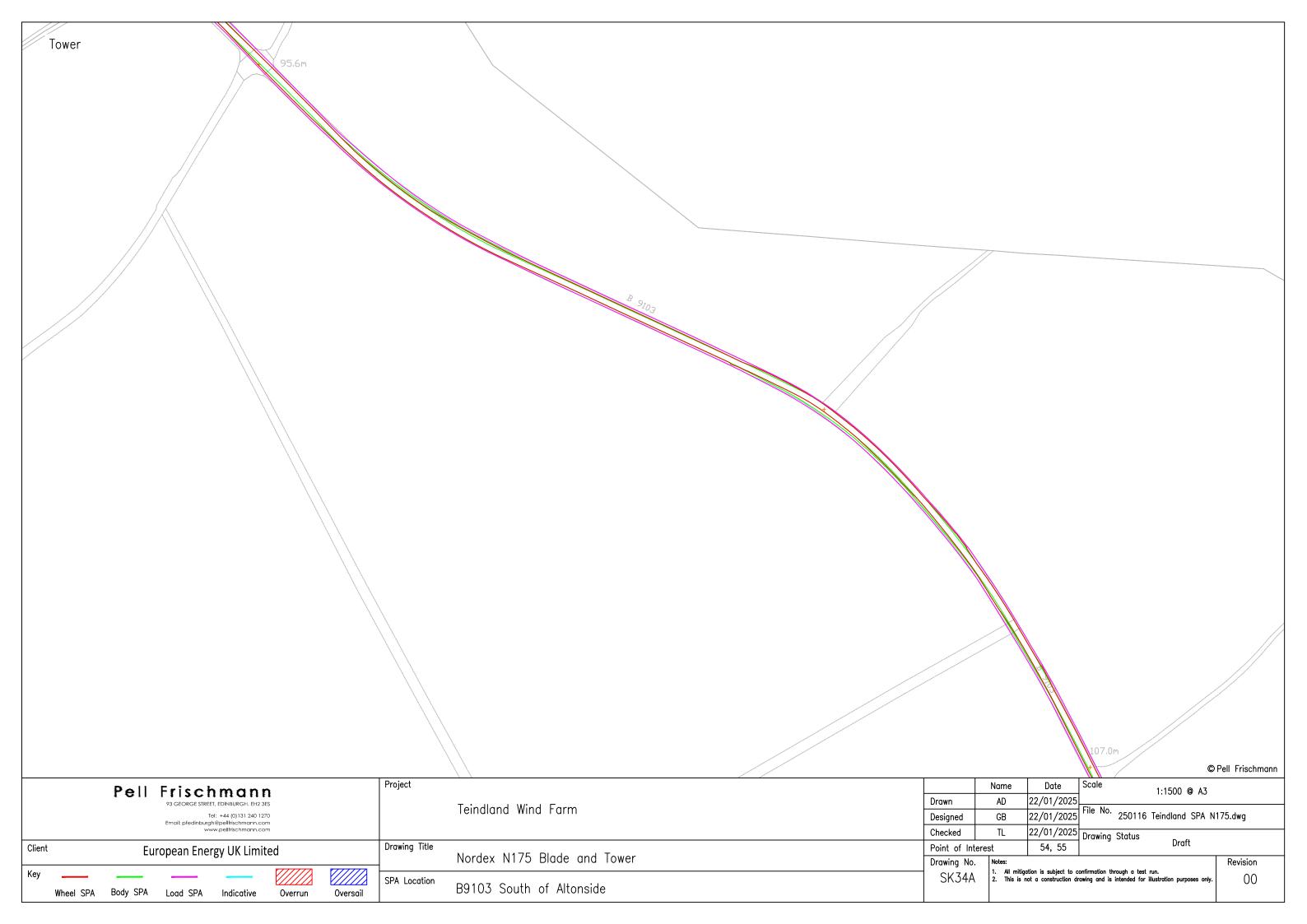


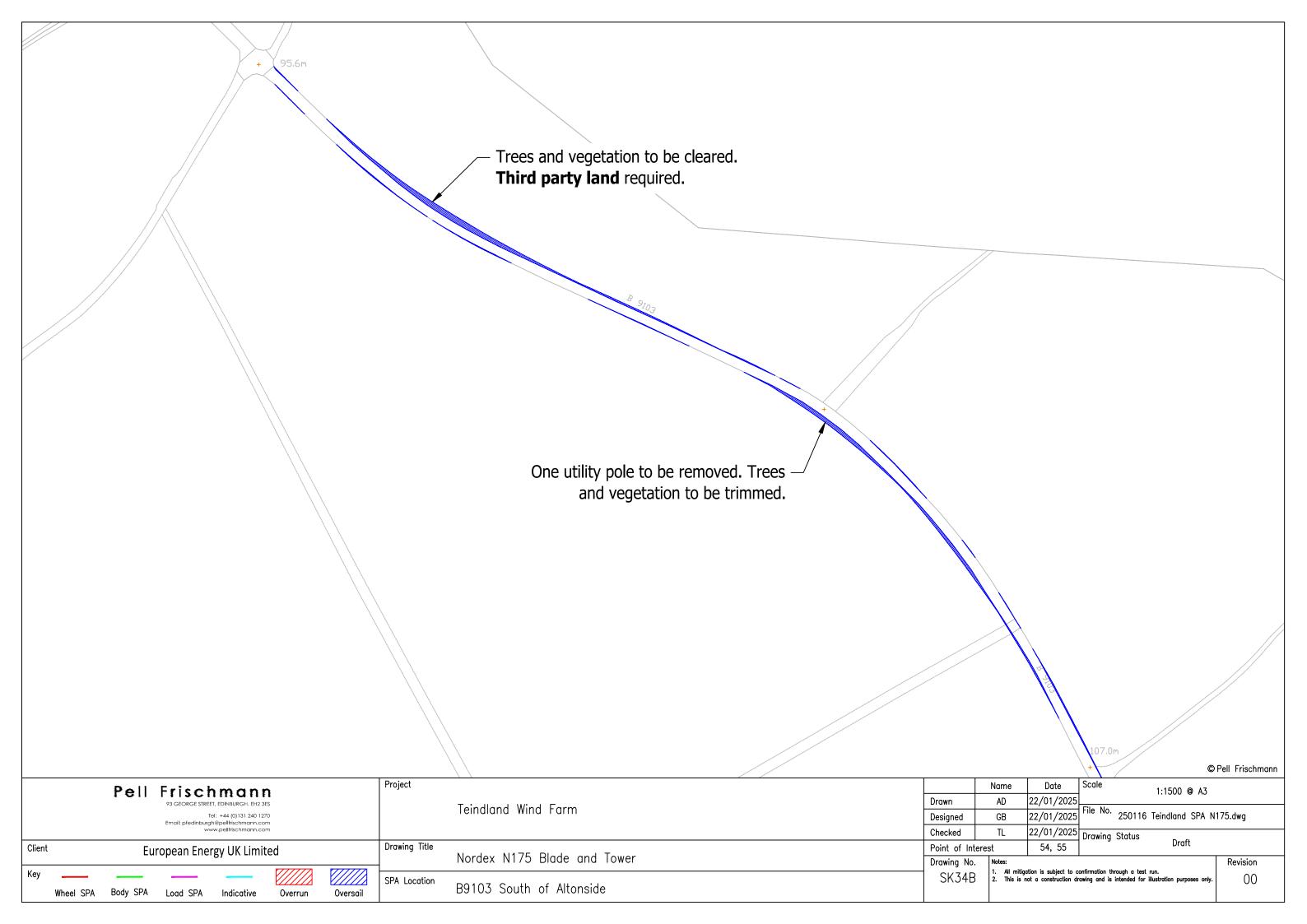


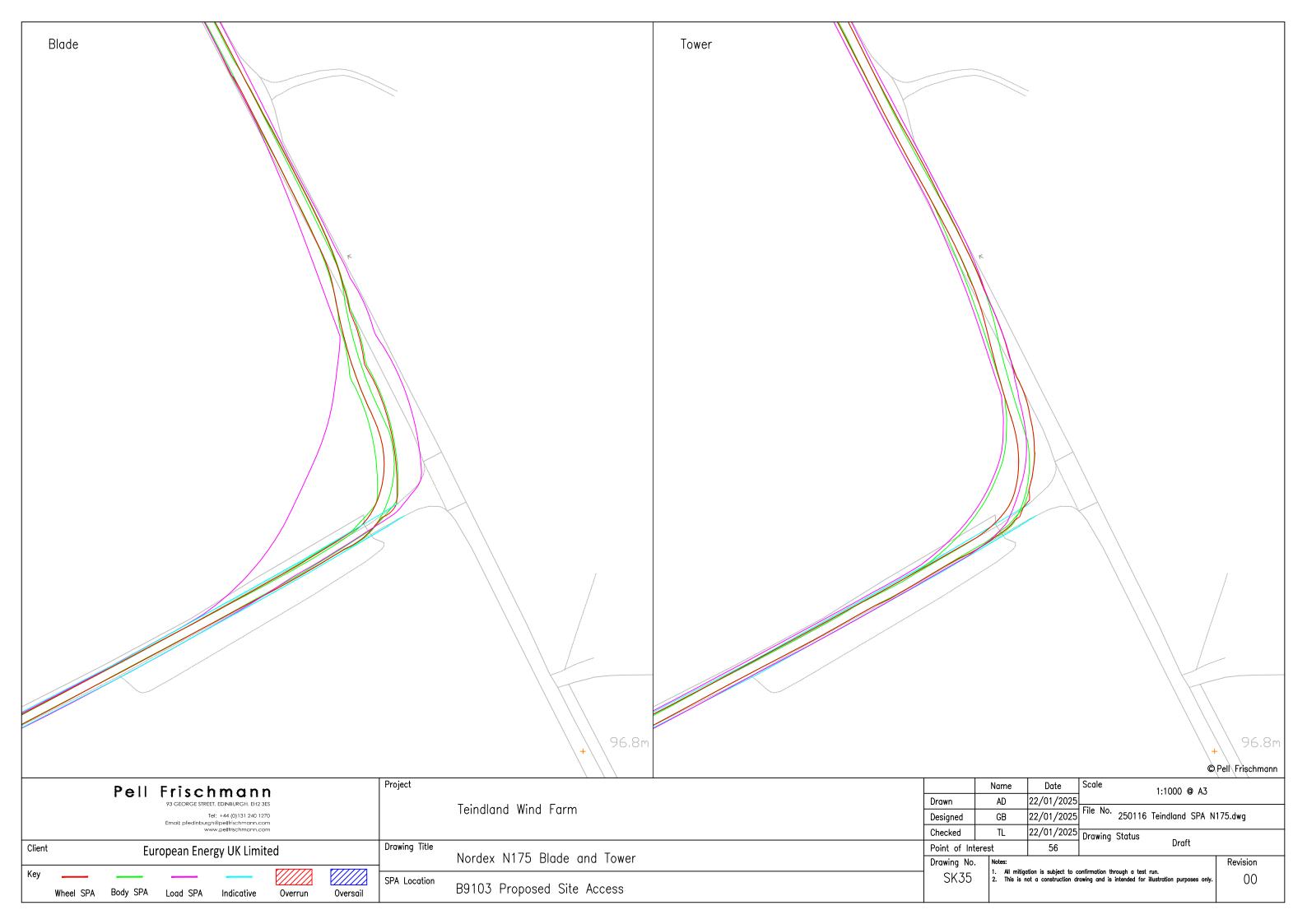


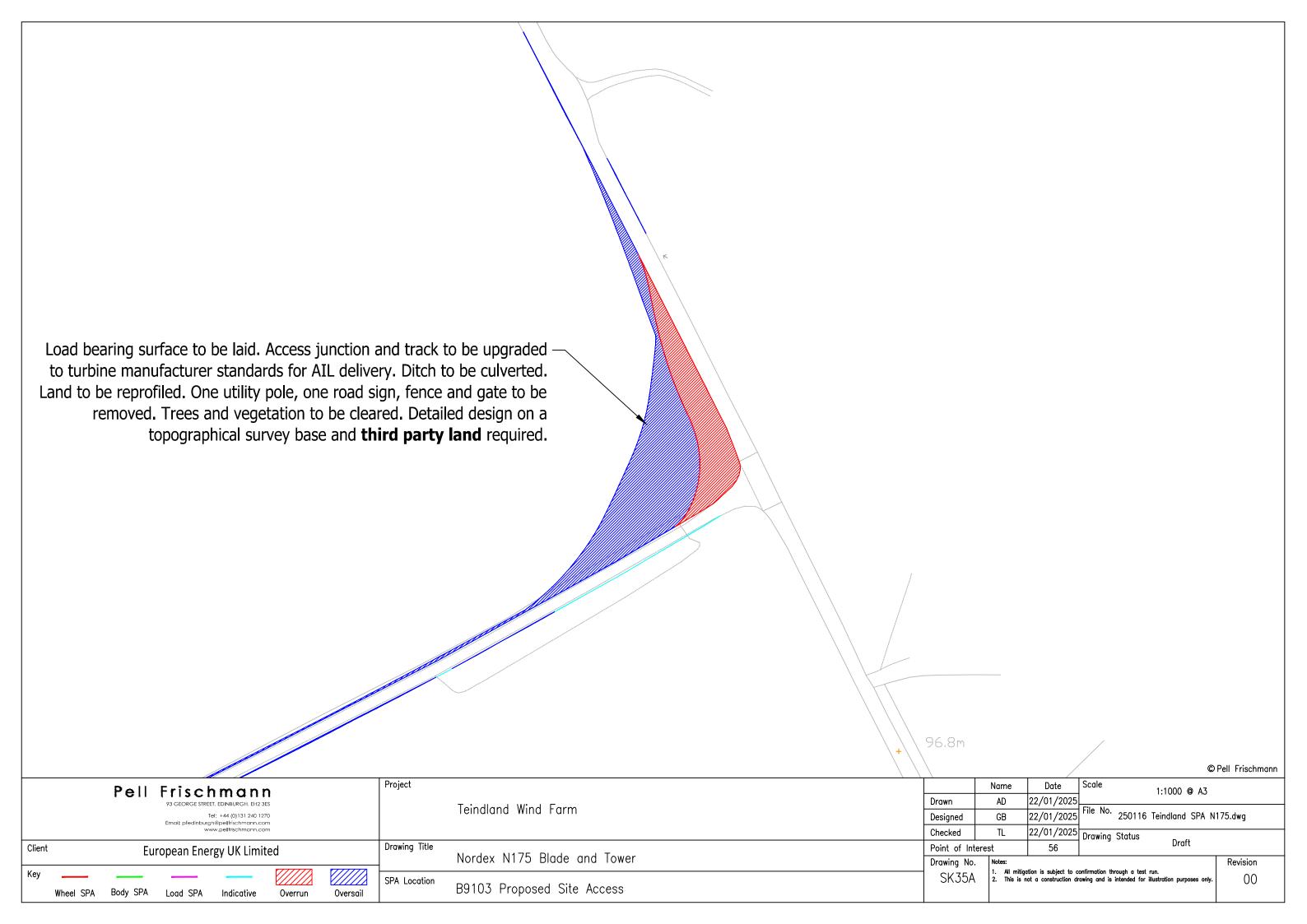




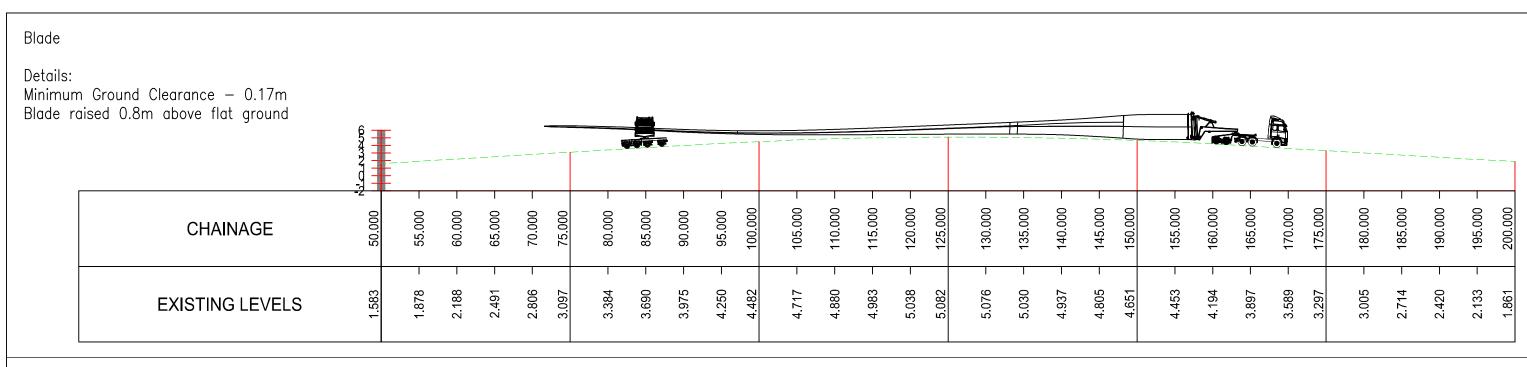








Abnormal Indivisible Load Route Survey Appendix C Reiket Lane Vertical Assessment

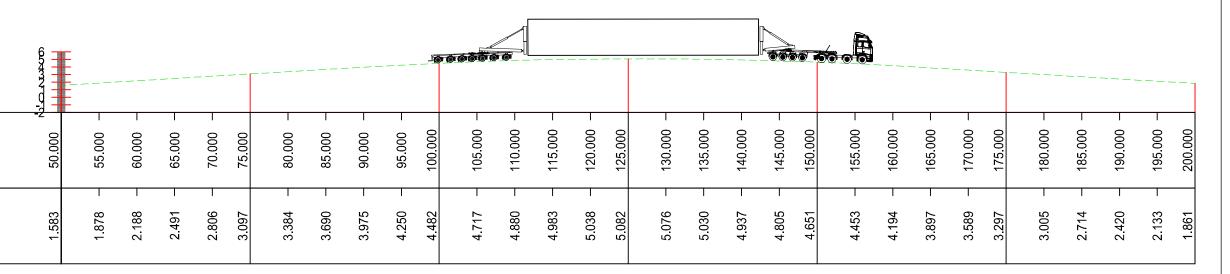






CHAINAGE

EXISTING LEVELS





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							•	7 Cii 1113Ciii11diii1
	Pell Frischmann	Project			Name	Date	Scale 1:500 @ A3	
	93 GEORGE STREET, EDINBURGH, EH2 3ES		Taindland Wind Farm	Drawn	JS	20/01/2025		
Tel: +44 (0) 131 240 1270 Email: pfedinburgh@pellfrischmann.com		Teindland Wind Farm	Designed	JS	22/01/2025	File No. 220125 Teindland Vertical Trac	king N175.dwg	
	www.pellfrischmann.com			Checked	TL	22/01/2025	Drawing Status	
	Client European Energy UK Limited	Drawing Title	N175 and Towers	Point of Int		35	Draft Draft	
				Drawing No.	Notes:	Notes:		
	Key	SPA Location Existing Ground		SK01	1. All mitig	ation is subject to co	ct to confirmation through a test run. ction drawing and is intended for illustration purposes only.	
	Existing Ground		Reiket Lane Rail Bridge	Sixe 1		,		

Appendix D ESDAL Responses