

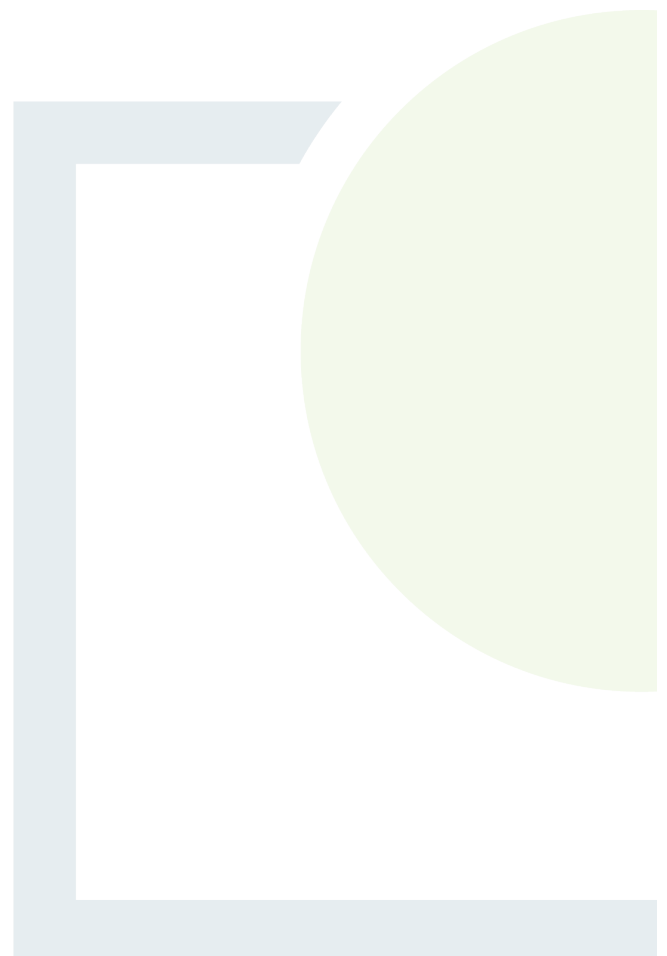


**FEHILY
TIMONEY**

**CONSULTANTS IN ENGINEERING,
ENVIRONMENTAL SCIENCE
& PLANNING**

Appendix 13.2

**Turbine Delivery Route
Survey Report**



P e l l F r i s c h m a n n

Ballinagree Wind Farm

Abnormal Indivisible Load Route Survey



December 2021

Revision Record

| Rev | Description | Date | Originator | Checker | Approver |
|-----|---|----------|------------|----------|----------|
| A | Draft | 29/05/20 | T Lockett | G Buchan | G Buchan |
| B | Additional Drawing Detail | 13/08/20 | T Lockett | G Buchan | G Buchan |
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| E | Final client comments | 22/12/21 | T Lockett | G Buchan | G Buchan |

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1 Introduction

1.1 Purpose of the Report

Pell Frischmann (PF) has been commissioned by Fehily Timoney and Company (FT) to undertake a study of the delivery route for wind turbine Abnormal Indivisible Loads (AIL) associated with the construction and development of Ballinagree Wind Farm, located to the south-east of Millstreet, County Cork. The developer of the wind farm is Coillte and FTC have been commissioned by them to review the wider environmental impact of the proposals.

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

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

No site visit had been undertaken at this time. A site visit will be required to confirm the results of this report.

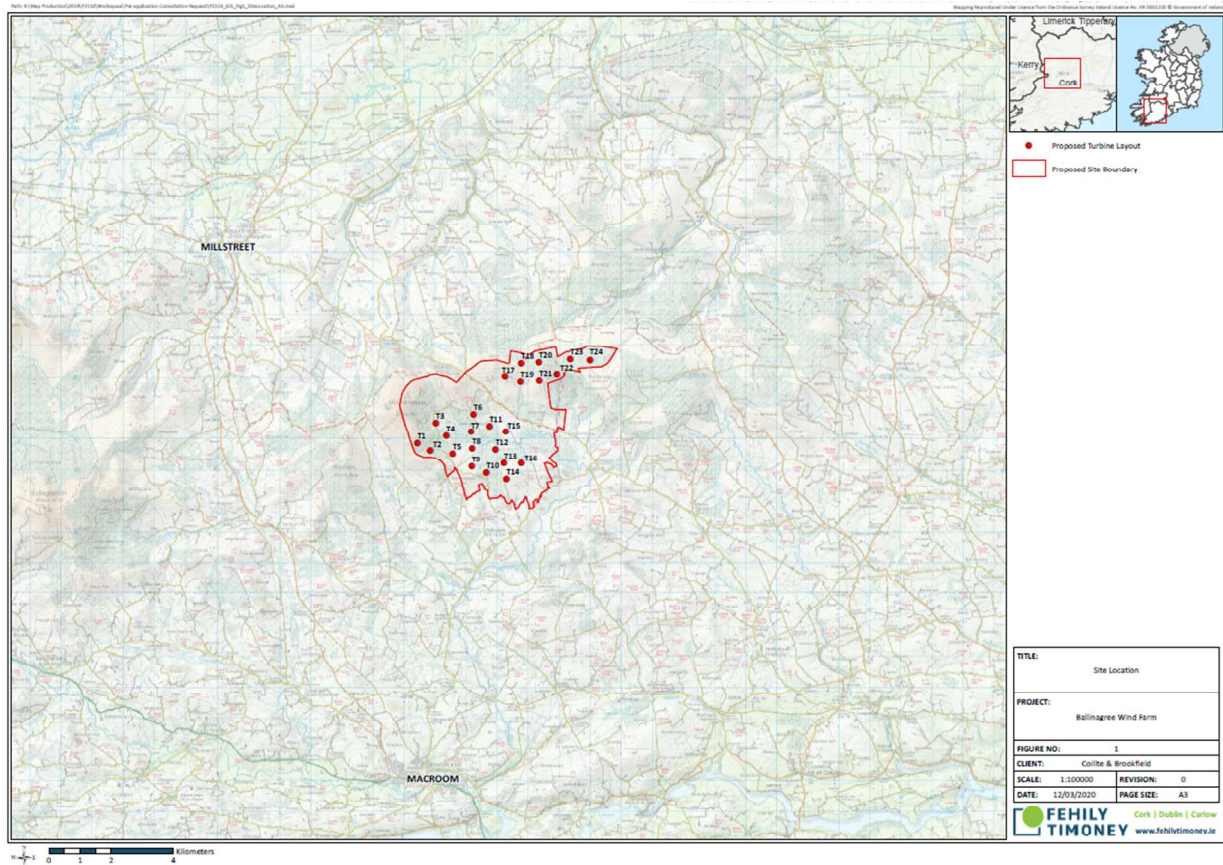
It is the responsibility of the wind turbine supplier to ensure that the entirety of the proposed access route is suitable and meets with their satisfaction. The turbine supplier will be responsible for ensuring that the finalised proposals meet with the appropriate levels of health and safety consideration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

2 Site Background

2.1 Site Location

The development site is located to the south-east of Millstreet, County Cork. Figure 1 illustrates the general site location.

Figure 1: Site Location Plan



2.2 Candidate Turbines

FT has indicated that Coillte wish to consider the ‘worst case scenario’ components from the Vestas V150, Nordex N149 or Siemens Gamesa SG6.0-155 turbines at a tip height of 185m. Tower and blade dimensions have been supplied by suppliers and are indicated below in Tables 1, 2 & 3.

Table 1: Vestas V150 Turbine Dimensions

| Section | Length (m) | Width (m) | Height (m) | Weight (t) |
|-------------|------------|-----------|------------|------------|
| Blade | 74.303 | 4.425 | 2.708 | 18.60 |
| Top Tower | 27.00 | 4.15 | 4.15 | 47.00 |
| Mid 3 Tower | 26.88 | 4.15 | 4.15 | 65.00 |
| Mid 2 Tower | 20.16 | 4.15 | 4.15 | 70.00 |
| Mid 1 Tower | 16.24 | 4.15 | 4.15 | 70.00 |
| Base Tower | 12.03 | 4.5 | 4.15 | 69.00 |

Table 2: Nordex N149 Turbine Dimensions

| Section | Length (m) | Width (m) | Height (m) | Weight (t) |
|--------------------|------------|-----------|------------|------------|
| Blade | 72.40 | 4.5 | 3.20 | 21.00 |
| Top Tower | 34.95 | 4.26 | 3.26 | 55.90 |
| Mid 2 Tower | 29.93 | 4.27 | 4.26 | 71.80 |
| Mid 1 Tower | 22.10 | 4.28 | 4.27 | 74.10 |
| Base Tower | 14.52 | 4.3 | 4.28 | 77.00 |

Table 3: Siemens Gamesa SG6.0 - 155 Turbine Dimensions

| Section | Length (m) | Width (m) | Height (m) | Weight (t) |
|--------------------|------------|-----------|------------|------------|
| Blade | 76.00 | 4.475 | 2.882 | - |
| Top Tower | 33.61 | 3.557 | 3.574 | 66.90 |
| Mid 2 Tower | 27.16 | 4.427 | 3.557 | 68.60 |
| Mid 1 Tower | 22.68 | 4.433 | 4.427 | 76.30 |
| Base Tower | 16.46 | 4.70 | 4.443 | 79.30 |

The swept path assessment will be based on the following ‘worst case scenario’ components;

- SGRE 6.0 – 155 Blade; and
- Combined SGRE 6.0-155 Mid 1 tower and Nordex N149 Mid Tower 2, (29.93m x 4.433m x 4.427m).

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 will be carried on a superwing carrier to reduce the need for mitigation in constrained sections of the route. The assessment has assumed that the blade will be carried with a rear overhang of 17m.

It is proposed that the blade would be carried using a Goldhofer blade lifting trailer from near Millstreet to the proposed site access. This trailer has the ability to lift blades up to a maximum angle of 60 degrees, lifting blades over potential constraints and shortening the length plan view.

All overhead utilities and obstructions should be removed at any locations that the blades are raised on the blade lifting trailer.

Tower sections would be carried in a 4+7 clamp adaptor trailer.

Examples of the types of trailers proposed are provided in Figures 3, 3 and 4.

Figure 2: Superwing Carrier Trailer



Figure 3: Blade lifter



Figure 4: Tower Trailer



3 Access Route Review

3.1 Access Route

Due to travel restrictions associated with the Covid 19 outbreak, all results described below are based upon a desk top assessment of the access route as agreed with FT. Previous experience of sections of the route has been utilised as part of the assessment. A full site visit will be required to confirm that all constraints have been noted on the route.

The nearest, suitable Port of Entry (PoE) for the site is Foynes Port. Loads can be offloaded by geared vessels or onshore mobile cranes. The harbour has been used for delivery of components for a number of windfarms including Cappawhite and Lisheen wind farms.

As part of this study two potential routes to site have been reviewed.

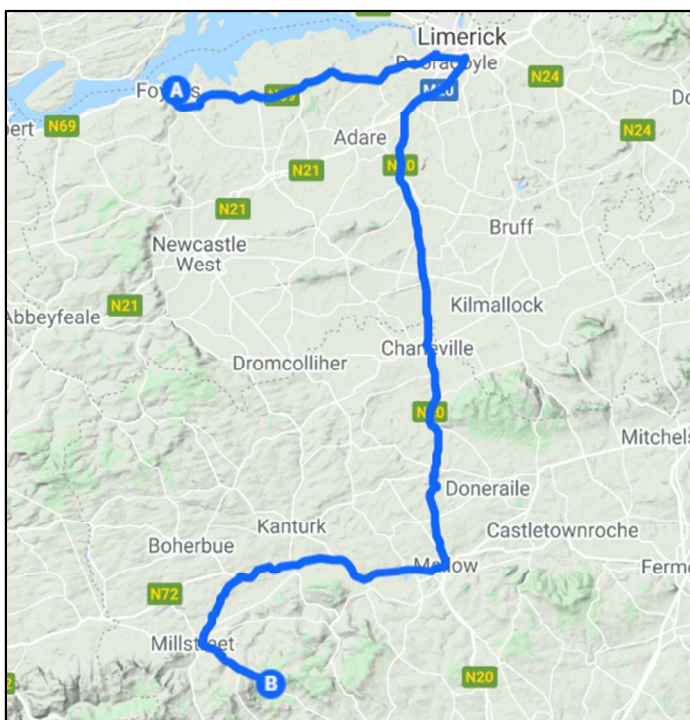
3.1.1 Route Option 1 – Mallow Route

Route Option 1 to the site would be as follows:

- Loads would depart Foynes Port and turn left onto the N69 and continue east towards Limerick;
- Loads would join the eastbound carriageway of the M7 before leaving at Junction 1 onto the M20 southbound;
- Loads would depart the N21 at Ballbronogue and travel south on the N20;
- Loads would continue south on the N20 to Mallow where they would turn right and join the westbound N72;
- Loads would depart the N72 to the west of Dromagh and turn left onto the R583 travelling to Millstreet; and
- Loads would turn left onto the L1123 and continue to the proposed site entrance.

The proposed access route is illustrated in Figure 5.

Figure 5: Proposed Northern Access Route



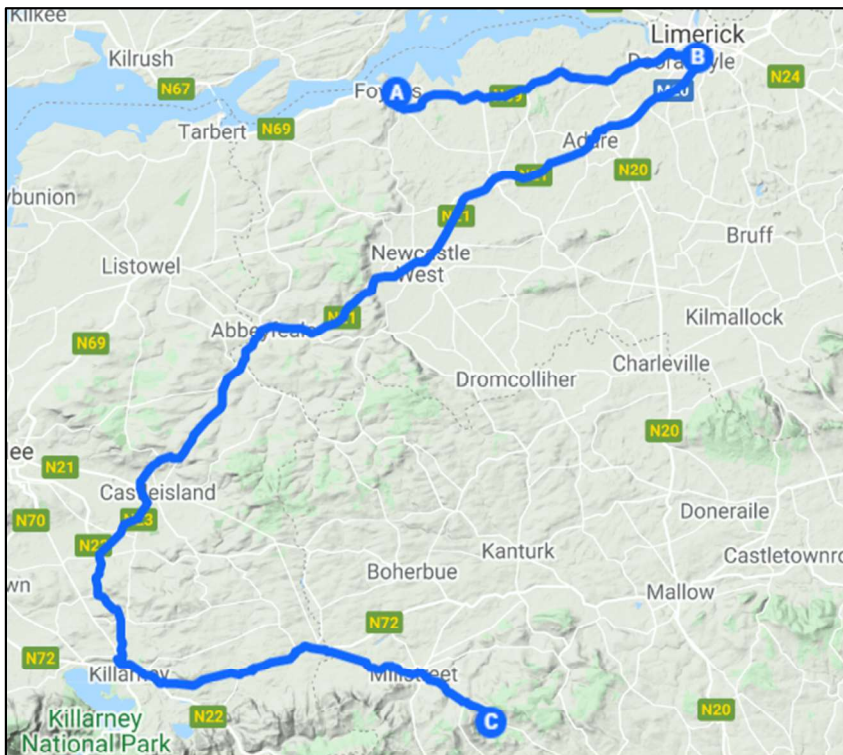
3.1.2 Route Option 2 – Newcastle West Route

Route Option 2 to the site would be as follows:

- Loads would depart Foynes Port and turn left onto the N69 and continue east towards Limerick;
- Loads would join the eastbound carriageway of the M7 before leaving at Junction 1 onto the M20 southbound;
- Loads would continue south on the N21 and N23 to Farranfore where they would turn left onto the N22;
- Loads would follow the N22 southbound to Killarney and then eastbound to Rathmore;
- Loads would turn left at Rathmore onto the R582 travelling east to Millstreet;
- Loads would turn right onto the L1123 and continue to the proposed site entrance.

The proposed access route is illustrated in Figure 6.

Figure 6: Proposed Southern Access Route



Following an overview of the constraints along each route and taking into account third party land and road modification costs requirements for both routes, it has been decided that Route Option One via Mallow is taken forward for full assessment.

Route Option 2 has a larger number of road modification requirements due to the number of villages, towns and roundabouts that need to be negotiated and passed through. A number of third party land options will be required on this route and the impact on other road users is considered to be higher due to the longer distance travelled and larger number of villages and towns encountered.

Significant constraints were noted on the N72, including the rail crossing to the east of Barraduff and when travelling between Rathmore and Millstreet on the R582. The ability to transit Millstreet west to east is extremely constrained and would need to be confirmed using a detailed topographical due to minimal clearances for the 76m blade within the town. For these

reasons, the assessment has focussed on Route Option 1 as the more appropriate and suitable access solution.


3.2 Route Constraints




The constraints noted in the route review of Option 1 are detailed in Table 1. These cover all constraints from the port access gates 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, which are addressed by others.





Where the blade lifting trailer is utilised all overhead utilities and obstructions should be removed at any location where the blade is in the raised position.




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





Table 4: Route Option 1 Mallow Route - Constraint Points and Details




| POI | Key Constraint | Details |
|-----|--|--|
| 1 | <p>Foynes Exit Road Gate and Rail Crossing</p>  | <p>Loads to exit Foynes Port main gate and continue to the junction with the N69.</p> <p>Following the exit from the port, loads will cross a speed bump, which should be taken at very low speeds.</p> <p>Loads will cross the railway line on the on the port access road. Escorts to ensure Irish Railways are informed prior to loads crossing the line.</p> |




| POI | Key Constraint | Details |
|-----|---|---|
| 2 | <p>Foynes Port Access Road / N69</p>  | <p>Loads will turn left from the port access road onto the N69.</p> <p>Loads will overrun and oversail the northern verge on approach to the junction where a load bearing surface should be laid and the trees / vegetation trimmed to allow oversail. A land search should be completed to confirm the extent of available adopted boundary. Two road signs should be removed.</p> <p>Loads will oversail one splitter island and overrun the other. A load bearing surface should be laid and four road signs should be removed.</p> <p>Loads will oversail the verge on the inside of the left turn where one lighting column should be removed. The trailer suspension should be raised to allow oversail of the stone wall.</p> <p>Loads will overrun and oversail the western verge of the N69 on exit from the junction where a load bearing surface should be laid and one lighting column should be removed.</p> <p>The swept path assessment can be found in SK01 of Appendix B.</p> |
| 3 | <p>N69 North of Shrulane</p>  | <p>It is strongly recommended that a full overhead utility search is carried out along the route prior to deliveries to ensure that height clearances are suitable for normal temperature ranges. It is suggested that the developer contacts utility firms for a whole route review.</p> <p>There are a number of locations along the route where utilities were observed to be low.</p> |
| 4 | <p>N69 Barrigone</p>  | <p>Loads will continue through the left bend.</p> <p>Loads will occupy the entire carriageway width. Escorts to provide advanced warning to all oncoming vehicles.</p> |



| POI | Key Constraint | Details |
|-----|--|--|
| 5 | <p>N69 Carrig</p>  | <p>It is recommended that a vertical assessment is completed on a topographical base plan to ensure adequate ground clearance is available for loads when transiting the section, or that clearances are reviewed in the test run when the haulier is selected.</p> |
| 6 | <p>N69 West of Toreen</p>  | <p>Throughout the 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 National and Local Road Authorities is undertaken to agree cutting times and permits.</p> |
| 7 | <p>N69 Toreen</p>  | <p>Throughout the 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 National and Local Road Authorities is undertaken to agree cutting times and permits.</p> |
| 8 | <p>N69 Ferry Bridge</p>  | <p>It is recommended that a vertical assessment is completed on a topographical base plan to ensure adequate ground clearance is available for loads when transiting the section, or that clearances are reviewed in the test run once the haulier is selected.</p> <p>The trailers should be set on their higher suspension settings in advance of this location. Settings should be returned to normal following the bridge.</p> |



| POI | Key Constraint | Details |
|-----|---|---|
| 9 | <p>N69 Clarina Roundabout</p>  | <p>Loads will continue through the roundabout island on the N69.</p> <p>On approach to the roundabout, loads will oversail the northern footway. Loads will overrun and oversail the northern edge of the roundabout island where one chevron sign should be removed along with a number of trees. A load bearing surface should be laid.</p> <p>The swept path assessment can be found in SK02 of Appendix B.</p> |
| 10 | <p>N69 / N18 Dock Road West Roundabout</p>  | <p>Loads will continue straight ahead at the Dock Road West Roundabout.</p> <p>It is proposed that a new offline track is constructed through the centre of the roundabout due to the length of the blade components. A load bearing surface should be laid and the ground should be reprofiled. Two chevron signs should be removed. Trees and vegetation should be cleared</p> <p>The swept path assessment can be found in SK03 of Appendix B.</p> |
| 11 | <p>N69 / N18 Dock Road East Roundabout</p>  | <p>It is proposed that loads would undertake a contraflow manoeuvre through the eastern roundabout.</p> <p>Loads will oversail the north western verge between the roundabouts. Loads will oversail the approach road splitter island where three road signs and one lighting column should be removed. Loads will oversail the southern edge of the roundabout island.</p> <p>Loads will oversail and overrun the southern verge on the inside of the right bend leading to the on-slip. A load bearing surface should be laid and two lighting columns, three traffic signs and one junction box should be removed. The existing underground utilities should be protected.</p> <p>The swept path assessment can be found in SK03 of Appendix B.</p> |



| POI | Key Constraint | Details |
|-----|--|--|
| 12 | <p>N18 Junction 1 Offslip</p>  | <p>Loads will depart the N18 at Junction 1 and continue onto the M20.</p> <p>Loads will oversail both verges when travelling through the offslip. Three lighting columns and one traffic sign should be removed. The safety barrier and chevron signs will be oversailed.</p> <p>The swept path assessment can be found in SK04 of Appendix B.</p> |
| 13 | <p>N21 / N20 Junction 5</p>  | <p>Loads will depart the N21 at Junction 5 and turn left onto the N20 southbound.</p> <p>Loads will occupy the entire carriageway throughout the manoeuvre and all traffic should be held on the N20. Loads will overrun and oversail the splitter island where a load bearing surface should be laid and two road signs should be removed.</p> <p>The swept path assessment can be found in SK05 of Appendix B.</p> |
| 14 | <p>N20 Entering Charleville</p>  | <p>Loads will travel along the N20 through Charleville.</p> <p>All street furniture should be removed from central traffic islands throughout Charleville to allow central islands to be overrun and oversailed by loads.</p> |
| 15 | <p>N20 Entering Charleville</p>  | <p>Loads will continue south through Charleville on the N20.</p> <p>In order to minimise the required mitigation, it is proposed that loads will contraflow through the section. Three traffic islands should have street furniture removed to allow oversail.</p> <p>Loads will overrun two traffic islands where load bearing surfaces should be laid and all street furniture should be removed. Loads will oversail the western footway throughout where one bollard and one traffic sign should be removed.</p> <p>The swept path assessment can be found in SK06 of Appendix B.</p> |




| POI | Key Constraint | Details |
|-----|---|---|
| 16 | <p>N20 Exiting Charleville</p>  | <p>Loads will continue through the right bend leaving Charleville.</p> <p>In order to minimise the required mitigation, it is proposed that loads will contraflow through the section. Three traffic islands should have street furniture removed to allow oversail.</p> <p>The swept path assessment can be found in SK07 of Appendix B</p> |
| 17 | <p>N20 Leaving Buttevant</p>  | <p>Loads will travel through a series of bends when exiting Buttevant.</p> <p>Care should be taken through Buttevant due to the positioning of speed cushion traffic calming measures.</p> <p>Loads will oversail both verges throughout the right and left bend. One traffic sign should be removed from the north western verge.</p> <p>The swept path assessment can be found in SK08 of Appendix B.</p> |
| 18 | <p>N20 Ballybeg East</p>  | <p>Loads will continue south on the N20 through the left bend at Ballybeg Priory.</p> <p>Loads will negotiate the bend without the requirement for mitigation, however all oncoming traffic will need to be held back in advance of the bend.</p> <p>The swept path assessment can be found in SK09 of Appendix B.</p> |




| POI | Key Constraint | Details |
|-----|---|---|
| 19 | <p>N20 Ballybeg Bends</p>  | <p>Loads will continue through the series of bends south of Buttevant.</p> <p>Loads will oversail both verges through the section. Land ownership review is recommended at this location. Trees should be trimmed and chevron signs should be removed.</p> <p>The swept path assessments can be found in SK10 & 11 of Appendix B.</p> |
| 20 | <p>N20 Kilcloosha Bends</p>  | <p>Loads will continue through the series of bends south of Buttevant.</p> <p>Land ownership review is recommended at this location.</p> <p>Loads will oversail both verges through the section. Vegetation to be trimmed.</p> <p>The swept path assessment can be found in SK12 of Appendix B.</p> |
| 21 | <p>N20 New Twopothouse Village</p>  | <p>The traffic islands in the centre of the road should be cleared of all street furniture through New Twopothouse Village.</p> |




| POI | Key Constraint | Details |
|-----|--|---|
| 22 | <p>N20 Mallow</p>  | <p>All central traffic islands through Mallow should be cleared of street furniture to facilitate load oversail.</p> |
| 23 | <p>N20 / R883 Roundabout, Mallow</p>  | <p>Loads will continue south on the N20 through the roundabout.</p> <p>Loads will oversail the eastern verge on approach to the roundabout.</p> <p>A new offline track should be constructed through the roundabout. A load bearing surface should be laid and two lit chevron signs should be removed. The roundabout will need to be reprofiled.</p> <p>Swept path assessment SK13 is included in Appendix B.</p> |

| POI | Key Constraint | Details |
|-----------|---|---|
| <p>24</p> | <p>N20 / N72 Roundabout, Mallow</p>  | <p>Loads will depart the N20 and turn right onto the N72 travelling under a stone arch railway underbridge.</p> <p>The swept path assessment has been completed on client provided topographical survey mapping.</p> <p>On approach to the roundabout, loads will overrun and oversail the central reserve where a load bearing surface should be laid and two road signs should be removed. Loads will overrun and oversail the eastern verge where a load bearing surface should be laid and the crash barrier will be oversailed.</p> <p>Loads will overrun and oversail the roundabout island where a load bearing surface should be laid and the decorative sculptures and all street furniture should be removed.</p> <p>Loads will oversail the exit road central reserve where three road signs should be removed.</p> <p>Loads to remain in the centre of the road when transiting under the arch.</p> <p>Loads will overrun and oversail the northern footway west of the arch where a load bearing surface should be laid and a tree should be removed. Parking in the layby should be suspended during load movements.</p> <p>Swept path assessment SK14 is included in Appendix B.</p> |
| <p>25</p> | <p>N72 Exiting Mallow</p>  | <p>Two traffic bollards and one lighting column should be removed from the traffic island to allow loads to oversail the islands.</p> |



| POI | Key Constraint | Details |
|-----|---|---|
| 26 | <p>N72 Dromcummer Beg</p>  | <p>Loads will continue through a right then left bend before crossing the River Dalua Bridge.</p> <p>The swept path assessment has been completed on client provided topographical survey mapping.</p> <p>Loads will oversail the verge on the inside of the right bend where vegetation should be trimmed back.</p> <p>Loads will oversail both verges through the following left bend. It is recommended that a land search is completed for the area within the northern verge to confirm the extent of adopted boundary. Two set of chevron signs should be removed.</p> <p>Third party land will be required on the inside of the left bend leading onto the bridge. One traffic sign should be removed and the ground clearance for load oversail of the bridge parapet and safety barrier should be confirmed by the haulier</p> <p>Swept path assessment SK15 is included in Appendix B.</p> |
| 27 | <p>N72 Coolclogh Bends</p>  | <p>Loads will continue west through a series of bends.</p> <p>Loads will oversail the south western verges through the initial right bend and the following left bend. One traffic sign and one telegraph pole should be removed along with vegetation. The ground clearance of the loads over the safety barrier should be confirmed during the test run.</p> <p>Loads will continue to oversail both verges through the following left / right / left bends where vegetation should be cleared.</p> <p>Swept path assessments SK16 & 17 are included in Appendix B.</p> |



| POI | Key Constraint | Details |
|-----|---|---|
| 28 | <p>N72 Dromagh</p>  | <p>Loads will continue through a right bend whilst travelling west on the N72.</p> <p>Loads will oversail the southern verge on the outside of the bend where vegetation and trees should be trimmed.</p> <p>Swept path assessment SK18 is included in Appendix B.</p> |
| 29 | <p>N72 Dromtarriff Bend</p>  | <p>Loads will negotiate a tight left bend at Dromtarriff.</p> <p>The swept path assessment has been completed on client provided topographical survey mapping.</p> <p>Loads will oversail the north eastern verge where vegetation and trees should be trimmed. Four signs should be removed.</p> <p>Loads will overrun and oversail into third party land on the inside of the left bend. A load bearing surface should be laid and the low stone wall will be oversailed. Trees and hedges to be removed. There is limited clearance to the utility pole and one road sign should be removed.</p> <p>Swept path assessment SK19 is included in Appendix B.</p> |
| 30 | <p>N72 / R583 Junction</p>  | <p>Loads will turn right into the existing farm access junction.</p> <p>Loads will oversail both verges of the R583 through the section following the junction where three road signs, the hedge, trees and a section of wall should be removed. Third party land is required to the east of the road. The verge should be reprofiled to ensure adequate clearance for vehicle oversail.</p> <p>Swept path assessment SK20 is included in Appendix B.</p> |





| POI | Key Constraint | Details |
|-----|--|--|
| 31 | <p>R583 Killetragh</p>  | <p>Loads will continue west through the R583 Killetragh bend.</p> <p>The swept path assessment has been completed on client provided topographical survey mapping.</p> <p>Loads will oversail both verges on approach to the bend where vegetation should be trimmed back.</p> <p>Loads will oversail the verge on the inside of the left bend where vegetation should be trimmed.</p> <p>Vehicles will utilise the junction bellmouth to the west of the road to negotiate the bend.</p> <p>Swept path assessment SK21 is included in Appendix B.</p> |
| 32 | <p>R583 Minehill</p>  | <p>Loads will continue through the right bend at Minehill.</p> <p>Loads will oversail and overrun the verge on the outside of the bend where a load bearing surface should be laid. Trees and vegetation should be trimmed and it may be necessary to remove some of the trees. It is recommended that a land search is completed to confirm the extent of adopted roads boundary at this location.</p> <p>Swept path assessment SK22 is included in Appendix B.</p> |
| 33 | <p>R583 Garrane North</p>  | <p>Loads will continue through the left bend.</p> <p>Loads will occupy the entire carriageway width however no mitigation measures will be required. Escorts should hold oncoming vehicles.</p> |




| POI | Key Constraint | Details |
|-----|--|---|
| 34 | <p>R583 River Blackwater Bridge</p>  | <p>Loads will continue through the right bend over the River Blackwater.</p> <p>Loads will occupy the entire carriageway width however no mitigation measures will be required. Escorts should hold oncoming vehicles in advance of the bridge.</p> <p>It is recommended that discussions are held with the local roads authority to ensure that the Blackwater Bridge has sufficient load capacity for the proposed abnormal loads.</p> |
| 35 | <p>R583 Railway Underbridge</p>  | <p>Loads will continue under the railway line.</p> <p>The bridge does not have any marked height restrictions however it is recommended that the local roads authority is contacted once the haulier has been selected to confirm that the proposed loading can pass safely below the structure.</p> <p>The client provided topographical survey of the bridge has indicated that there is a height of 5.25m to the centre of the bridge soffit.</p> |
| 36 | <p>R583 Drishane Castle</p>  | <p>Blade Transfer Point</p> <p>Due to constraints at the left turn onto the L1123 and for the remainder of the route from that point to site, it is recommended that a blade lifter trailer is utilised to minimise requirements for third party land.</p> <p>It will be necessary to construct a blade transfer point within third party land where loads can arrive on the superwing carrier trailers and then be lifted and transferred onto the blade lifting trailer for the remainder of the route.</p> <p>This location is presented as a potential location subject to land discussions and detailed design of the transfer point.</p> <p><u>All overhead utilities and obstructions will need to be removed where the blade is carried in the upright position.</u></p> |



| POI | Key Constraint | Details |
|-----|---|---|
| 37 | R583 Right Bend Entering Millstreet  | <p>Loads will continue through the right bend entering Millstreet.</p> <p><u>Blade Lifted</u> The blade will be carried out in the raised position at 60 degrees. Neither the blade nor the tower components will oversail or overrun the verges. A number of overhead utility wires will need to be removed.</p> <p>It is recommended that following the bend, the blade is lowered to pass under two high voltage lines prior to the L1123 junction.</p> <p>Swept path assessment SK23 is included in Appendix B.</p> |


| POI | Key Constraint | Details |
|-----|---|---|
| 38 | <p>R583 / L1123 Junction</p> <p><u>Raised Blade Loads</u></p>  <p><u>Tower Loads</u></p>  | <p>Blade loads will be carried in the raised position through the left turn. Tower loads will continue to the tower transfer location west of Millstreet at Claratlea before returning and turning right at the junction.</p> <p>The swept path assessment has been completed on client provided topographical survey mapping.</p> <p>Blades would be transferred to a lifting trailer at POI 36.</p> <p>It would be necessary for a number of overhead utilities to be removed prior to the junction. Blade loads in the raised position would drive to the west of the junction and reverse onto third party land to the north of the R583 and oversail two structures. A stone wall and one road sign will need to be removed. Early discussions with the owners are essential. Load bearing surfaces should be laid. The chosen haulier should confirm the clearance over the building based on their vehicle setup.</p> <p>Tower loads will make a right turn into the junction. Loads will overrun and oversail the car park of the store to the north of the road where the wall should be removed and parking should be suspended. Existing utilities should be protected. Loads will overrun the north eastern footway of the exit road where a load bearing surface should be laid and oversail the inside of the right turn.</p> <p><u>All overhead utilities and obstructions will need to be removed where the blade is carried in the upright position.</u></p> <p>Swept path assessment SK25 is included in Appendix B.</p> |

| POI | Key Constraint | Details |
|-----|---|---|
| 39 | <p>Claratlea Tower Turning</p>  | <p>It is proposed that tower loads will be brought to a turning area at Claratlea.</p> <p>Full details of the methodology for undertaking the manoeuvre and drawings can be found in Appendix C of this report.</p> |
| 40 | <p>L1123 Left Bend South of Millstreet</p>  | <p>Loads will continue through the left bend.</p> <p>The swept path assessment has been completed on client provided topographical survey mapping.</p> <p><u><i>The blade will be carried in the raised position from this point to the site entrance. All overhead utilities and obstructions should be removed.</i></u></p> <p>Loads will oversail both verges on approach to the left bend.</p> <p>Loads will utilise the existing overrun area. Confirmation should be sought that this is part of the adopted road network. Parking should be suspended during the period of deliveries. The area should be extended and a load bearing surface should be laid.</p> <p>Overhead utilities and obstructions should be removed.</p> <p>Swept path assessment SK27 is included in Appendix B.</p> |

| POI | Key Constraint | Details |
|-----|---|---|
| 41 | <p>Tulig Road Right Bend</p>  | <p>Loads will continue through the right bend.</p> <p>The swept path assessment has been completed on client provided topographical survey mapping.</p> <p>Loads will oversail both verges through the section where vegetation should be trimmed.</p> <p>Overhead utilities and obstructions should be removed.</p> <p>Swept path assessment SK28 is included in Appendix B.</p> |
| 42 | <p>Tulig Road Left / Right Bend</p>    | <p>Loads will continue east through a left / right bend section.</p> <p>The swept path assessment has been completed on client provided topographical survey mapping for part of the section and available aerial mapping for the remainder.</p> <p>Loads will oversail both verges through the section where vegetation / trees should be trimmed.</p> <p>Overhead utilities and obstructions should be removed.</p> <p>Loads will oversail the northern verge on the inside of the second left bend where vegetation / trees should be trimmed.</p> <p>Loads will utilise the existing overrun areas through the final chicane and the verges will be oversailed. Vegetation should be cleared.</p> <p>Swept path assessments SK29 & SK30 are included in Appendix B.</p> |

| POI | Key Constraint | Details |
|-----|---|--|
| 43 | <p>River Owenbawn Left Bend</p>  | <p>Loads will pass through a constrained section.</p> <p>Loads will oversail the western boundary into third party land where trees should be removed.</p> <p>All overhead utilities and obstructions should be removed.</p> <p>Loads will oversail into third party land on the inside of the bend where a wall and trees should be removed.</p> <p>Swept path assessment SK31 is included in Appendix B.</p> |
| 44 | <p>Auhane West of Tullig</p>  | <p>Loads will continue through a left / right bend section.</p> <p>Loads will overrun and oversail into third party land to the south west of the road where a load bearing surface should be laid. The land should be reprofiled and the hedge removed.</p> <p>All overhead utilities and obstructions should be removed.</p> <p>Loads will oversail into third party land to the north of the road through the right bend where one traffic sign should be removed.</p> <p>Swept path assessment SK32 is included in Appendix B.</p> |
| 45 | <p>Proposed Northern Site Access</p>  | <p>Loads will turn into the northern site entrance and continue to the turbine locations using new access tracks to the left and right.</p> <p>In order to avoid three main constraint locations to the right, it is recommended that a new access junction is created and an offline track constructed leading to the proposed turbine locations.</p> <p>The site access junctions will need to be constructed to meet manufacturer and local road authority standards.</p> |

| POI | Key Constraint | Details |
|-----|--|---|
| 46 | <p>Right Turn at Farm Yard</p>  | <p>Loads using the southern entrance will continue south on the main road and turn right through the farm yard.</p> <p>In order to manoeuvre through the farm yard, it will be necessary for a new offline track to be created to the north east of the main road where third party land will be required. Detailed design is required to confirm the required mitigation. Track should have level camber to ensure the safe movement of the blade lifter through the turn. Wall in verge to be removed along with fencing. Trees and vegetation to be removed along with all overhead utilities and obstructions. A topographical survey is required to confirm the mitigation.</p> <p>A topographical survey will be required to confirm movement of loads between the farm buildings as the clearances between buildings appear minimal.</p> <p>Swept path assessment SK33 is included in Appendix B.</p> |
| 47 | <p>Left Bend over Bridge</p>  | <p>Loads will continue through the left bend.</p> <p>Third party land required for oversail on both sides of the road. Road to be widened to a minimum of 5m running width. Trees and vegetation to be removed. A topographical survey is required to confirm the mitigation. One utility pole to be removed.</p> <p>Swept path assessment SK34 is included in Appendix B.</p> |

| POI | Key Constraint | Details |
|-----|--|--|
| 48 | Southern Site Access  | <p>Loads would turn left into the southern site access.</p> <p>Loads will oversail into third party land to the north west of the road as well as on the inside and outside of the left turn into the junction. A load bearing surface will be required on the inside of the bend and the junction should be designed to meet manufacturer and local road authority standards.</p> <p>Swept path assessment SK35 is included in Appendix B.</p> |

3.3 Swept Path Assessment Results and Summary

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

The colours illustrated on the swept paths are:

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

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

Please note that where assessments have been undertaken using Ordnance Survey Ireland (OSI) base mapping or available CAD based aerial 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 OSI base mapping, aerial mapping or client supplied data.

3.4 Access Junction Considerations

The access junction into the site would need to be built to accommodate the proposed physical size of loads and the number of trips predicted during the construction phase.

The design and form of the junction would need to be discussed with the local road authority. The design of the junctions should take into account the requirement for provision of visibility splays which should be defined by the road authority.

The junctions would also need to be built in accordance with the turbine supplier design criteria.

3.5 Summary Issues

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

- That a full site visit is completed and the RSR is updated to ensure that all constraints have been noted;
- That any necessary topographical surveys are undertaken and the swept path results repeated;
- Negotiations with land owners where identified as being required should commence as a priority;
- A revised review of axle loading on structures along the entire access route with the various road agencies is undertaken immediately prior to the loads being transported in case of last minute changes to structures;

- A review of clear heights with utility providers and the transport agencies along the route to ensure that there is sufficient space to allow for loads plus sufficient flashover protection (to electrical installations);
- That any verge vegetation and tree canopies which may foul loads is trimmed prior to loads moving;
- That a review of potential roadworks and or closures is undertaken once the delivery schedule is established in draft form;
- That a test run is completed to confirm the route and review any vertical clearance issues; and
- 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 FT to prepare a desk based Route Survey Report to examine the issues associated with the transport of AIL turbine components to the development site.

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

The access review has been based upon a SG6.0-155 blade and worst case tower components.

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

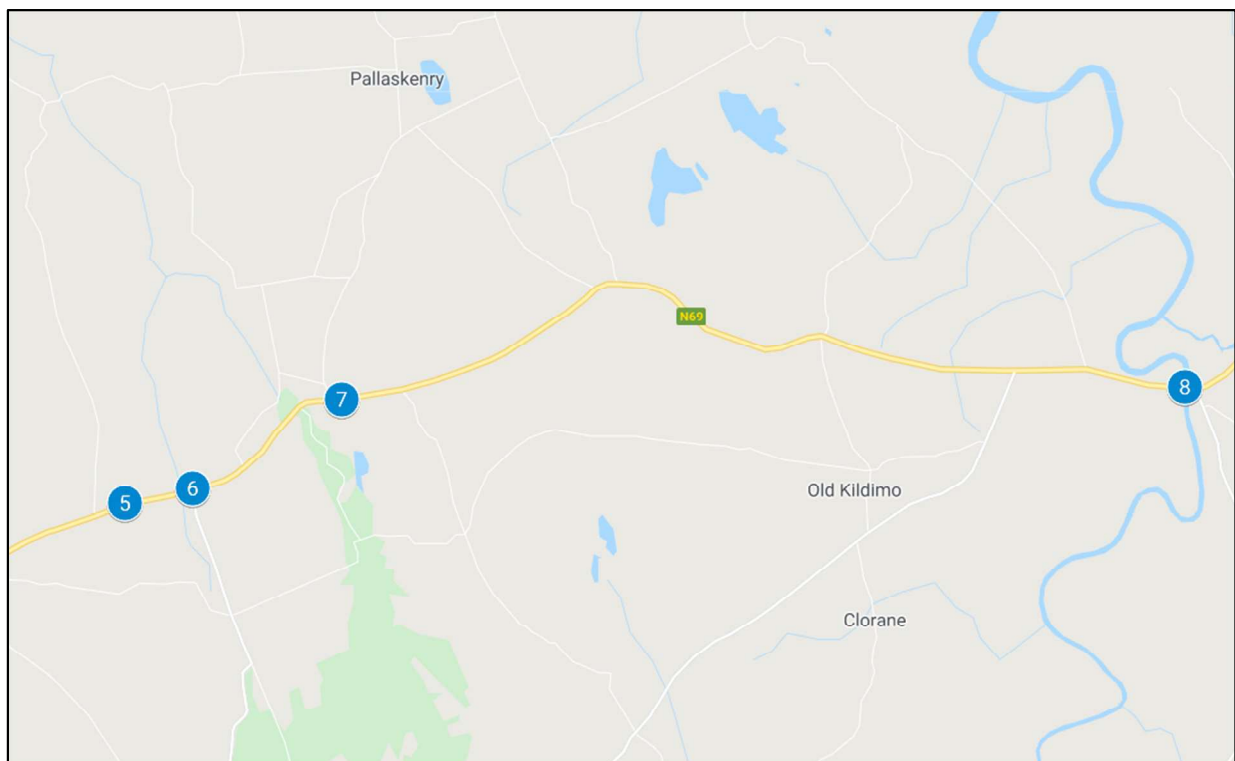
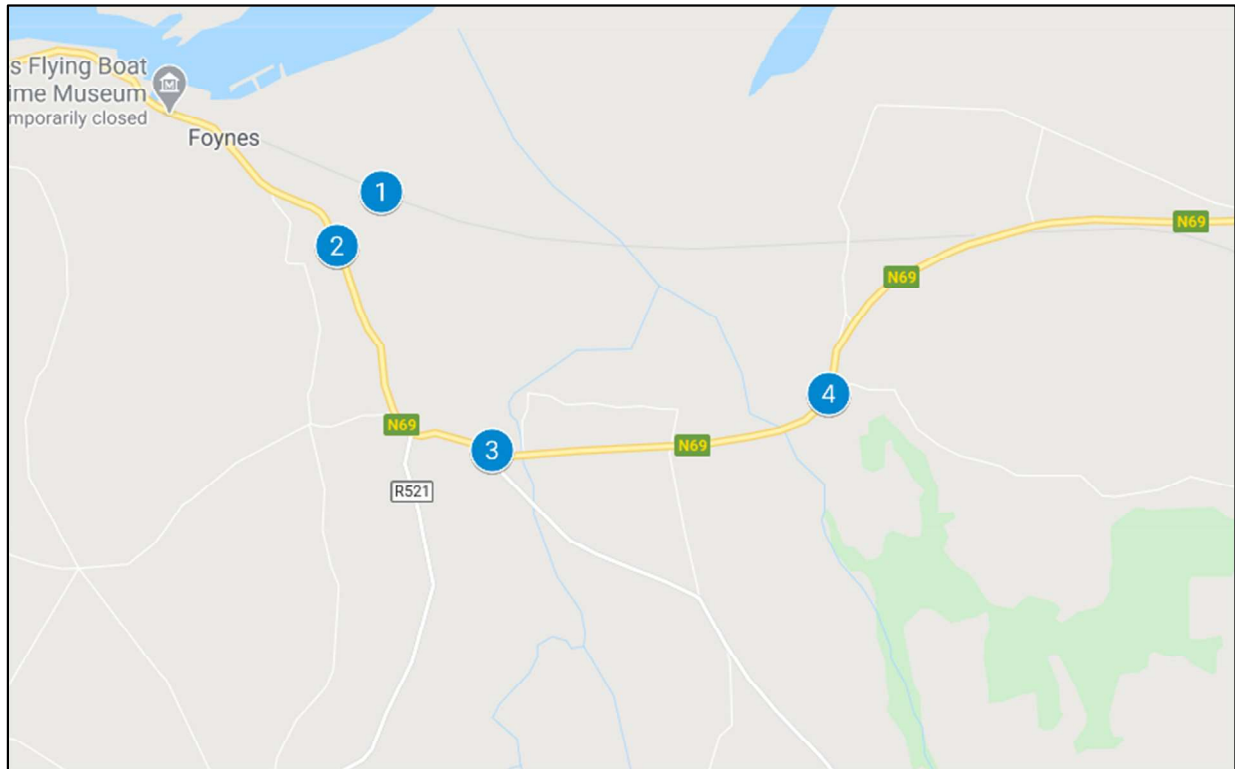
4.2 Further Actions

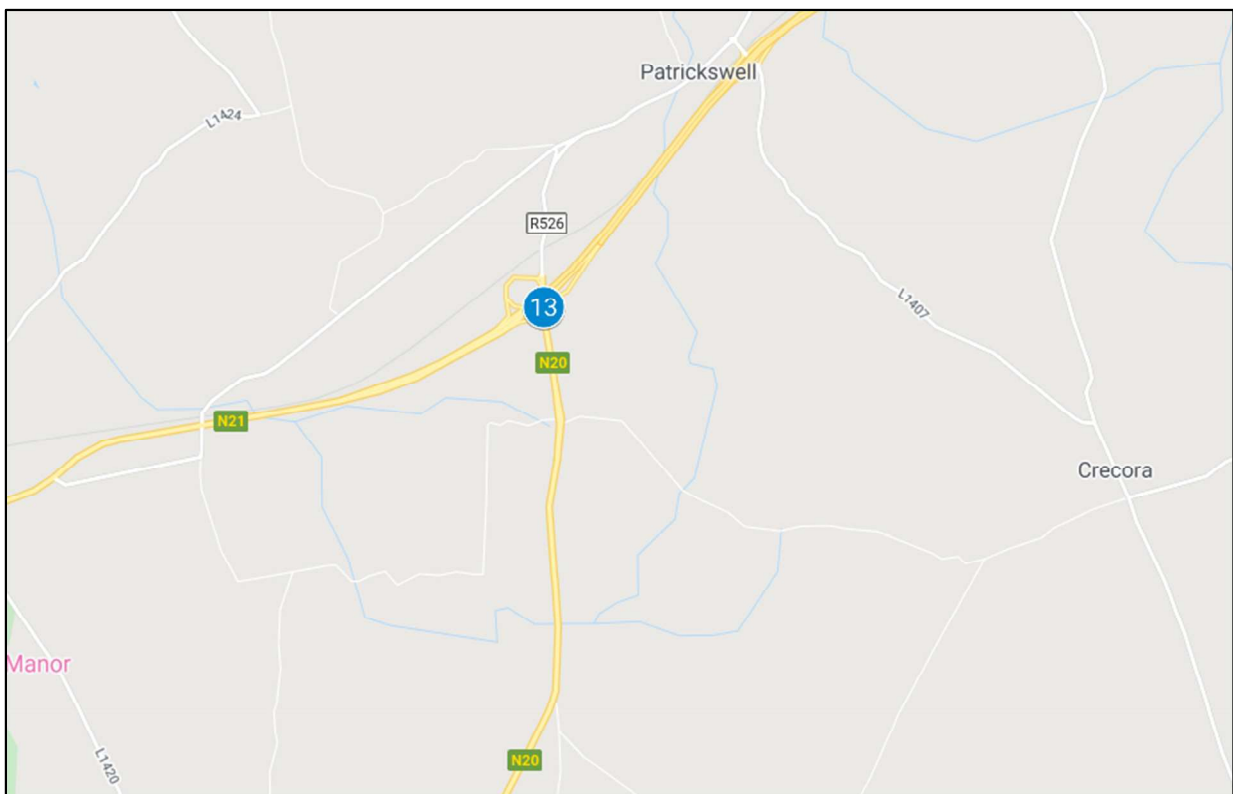
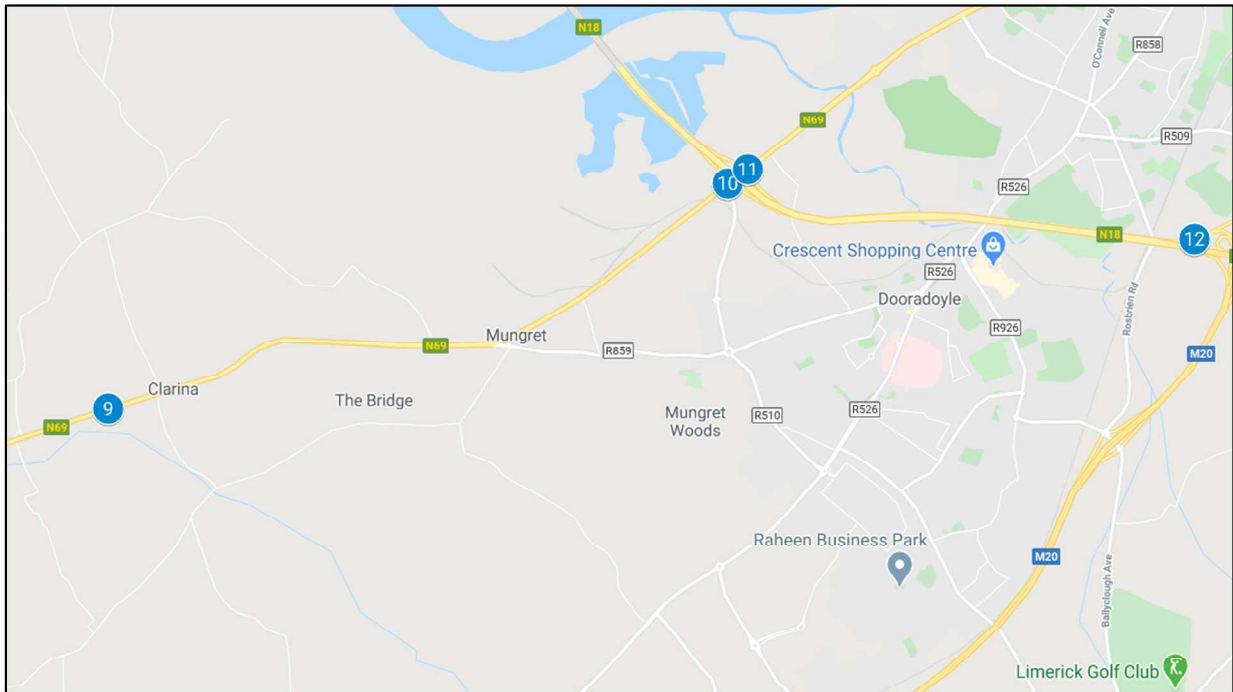
The following actions are recommended to pursue the transport and access issues further:

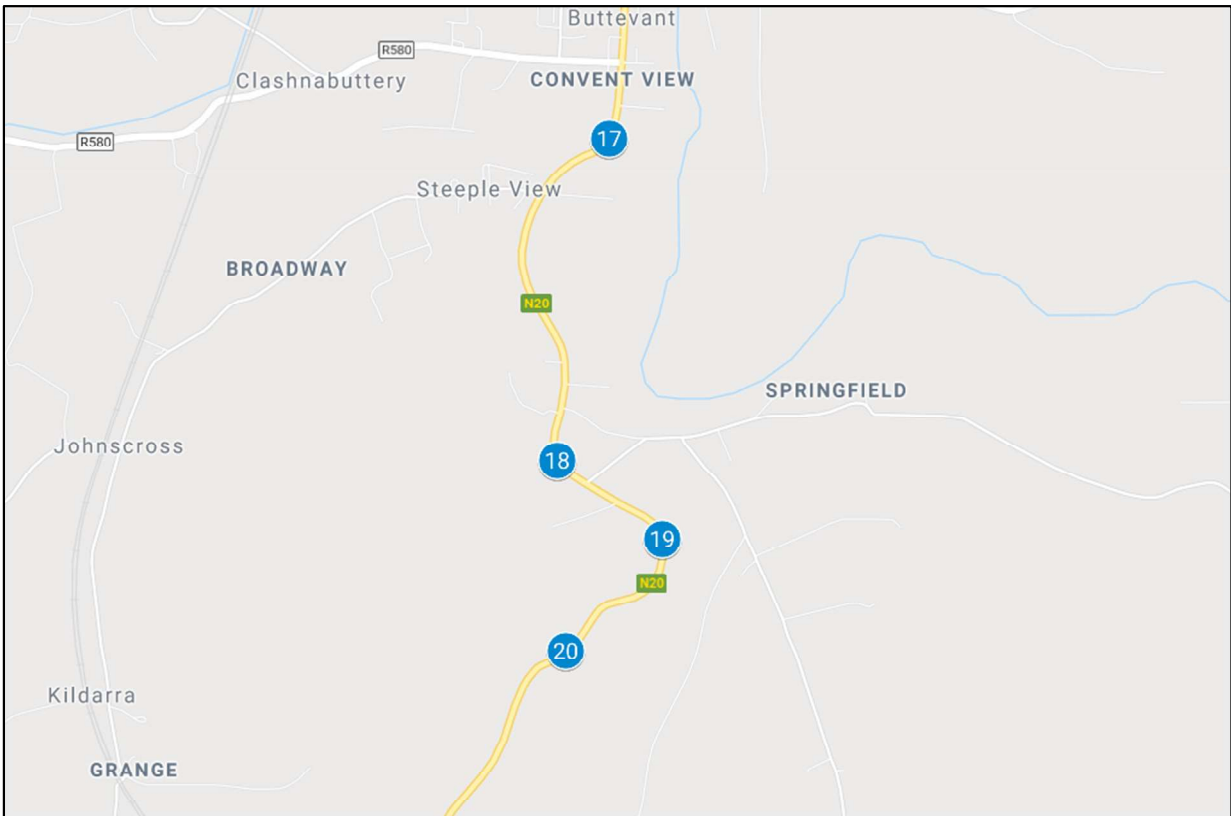
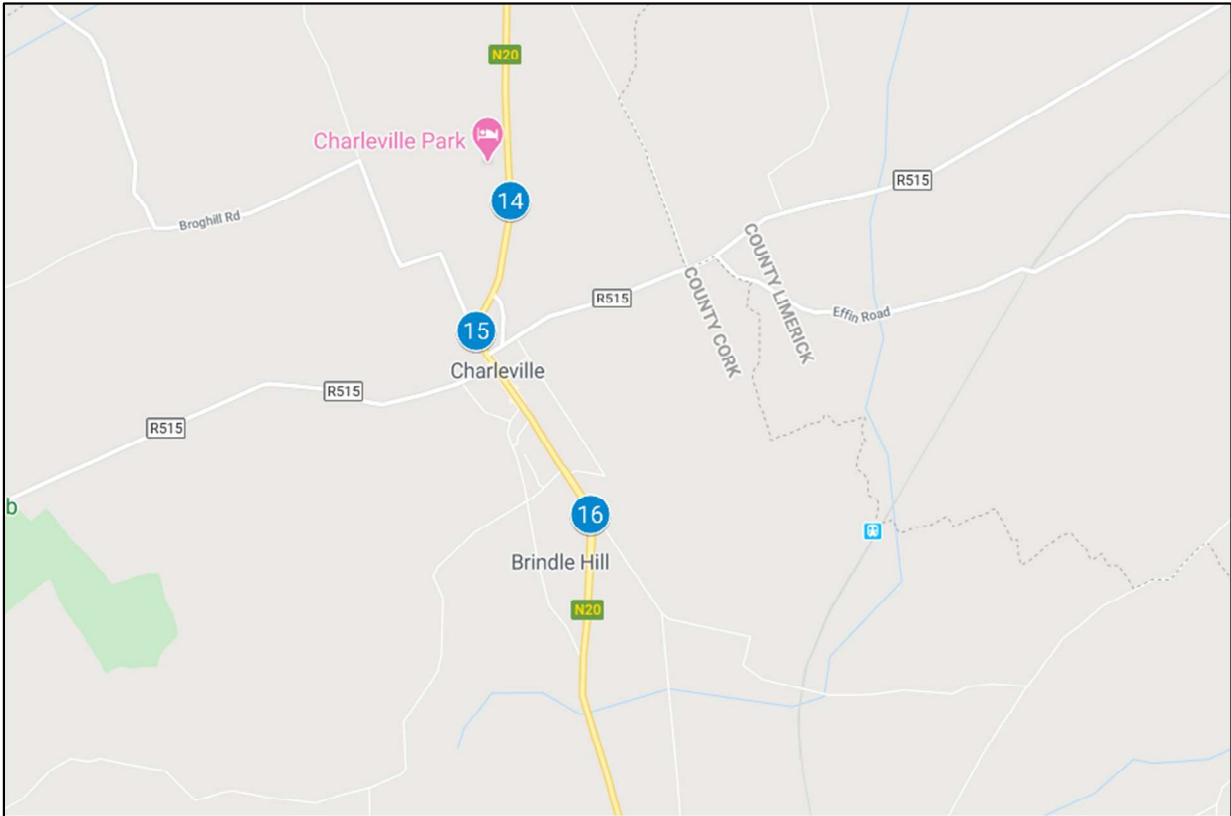
- Undertake a full site visit and update the route survey report for the proposed site;
- Prepare detailed mitigation design proposals to help inform the land option / consultee discussions;
- Obtain the necessary land options;
- Undertake discussion with the affected utility providers and roads agencies;
- 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.

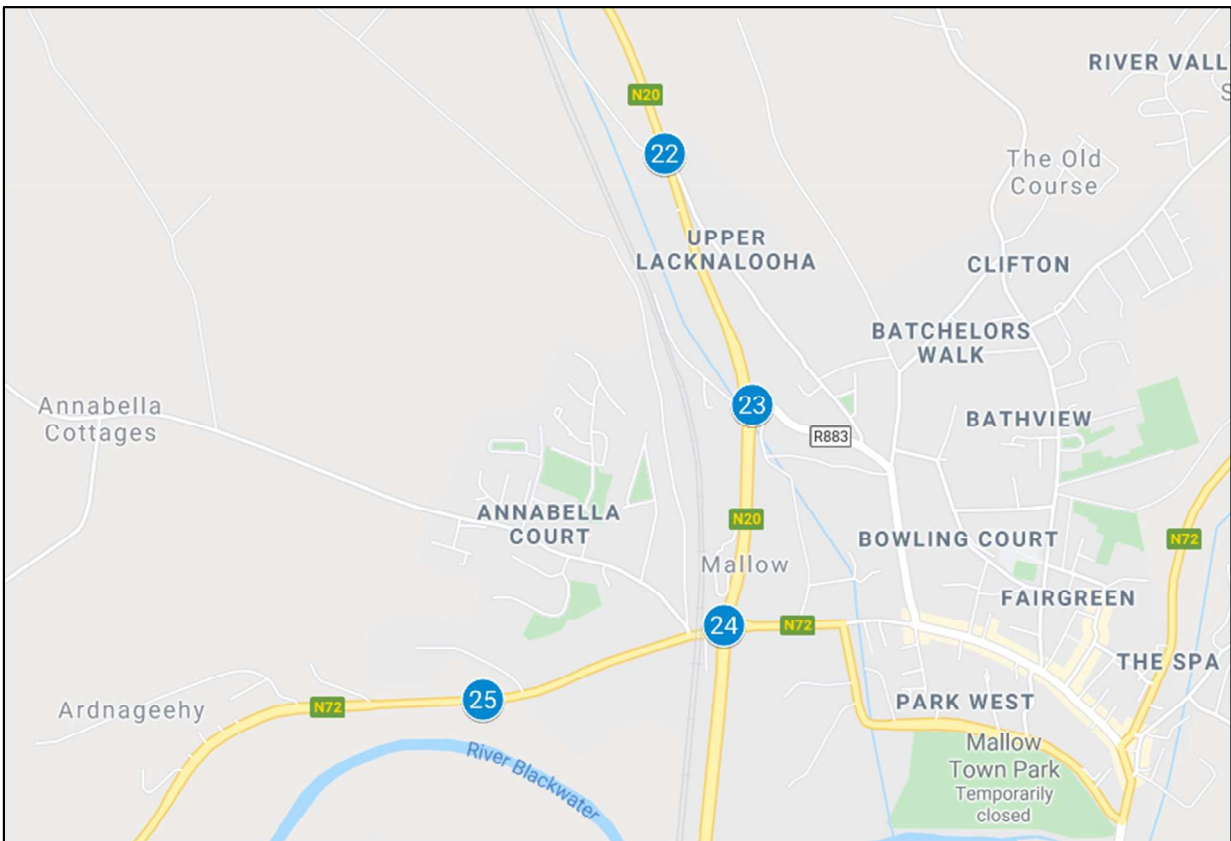
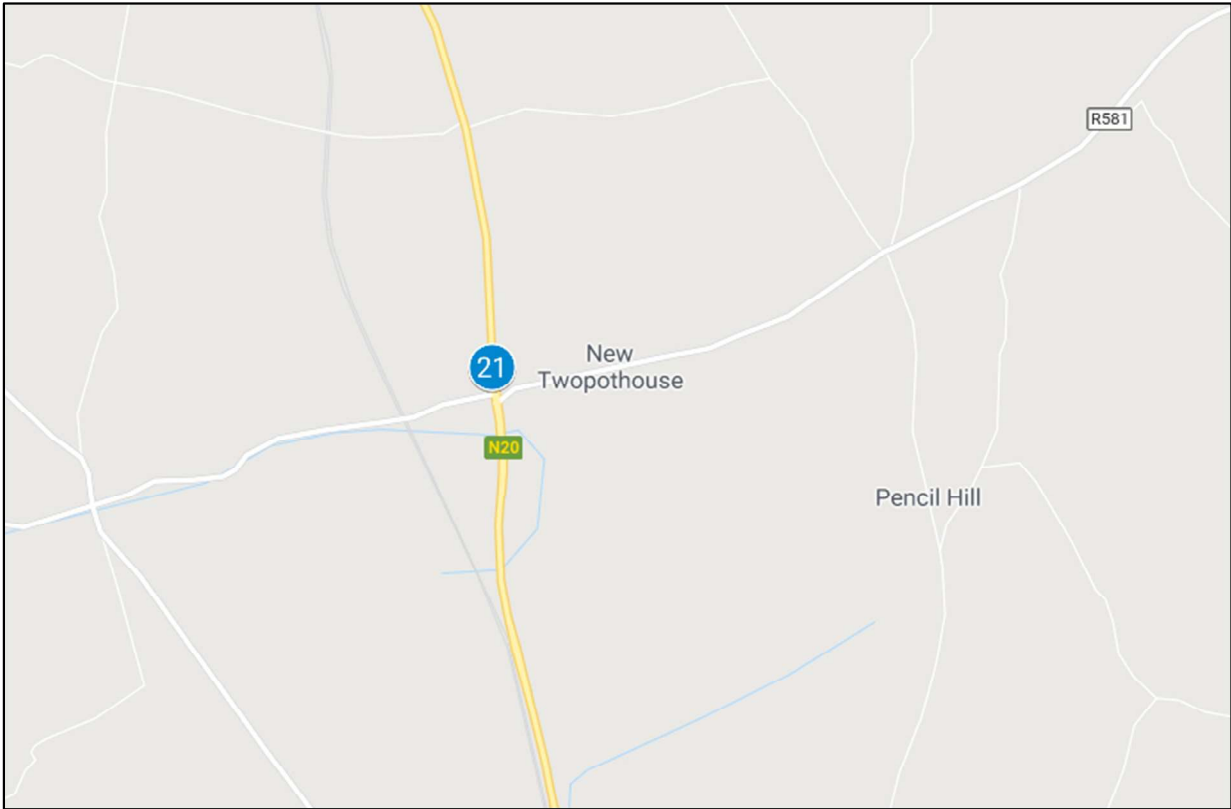
Appendix A Points of Interest Locations

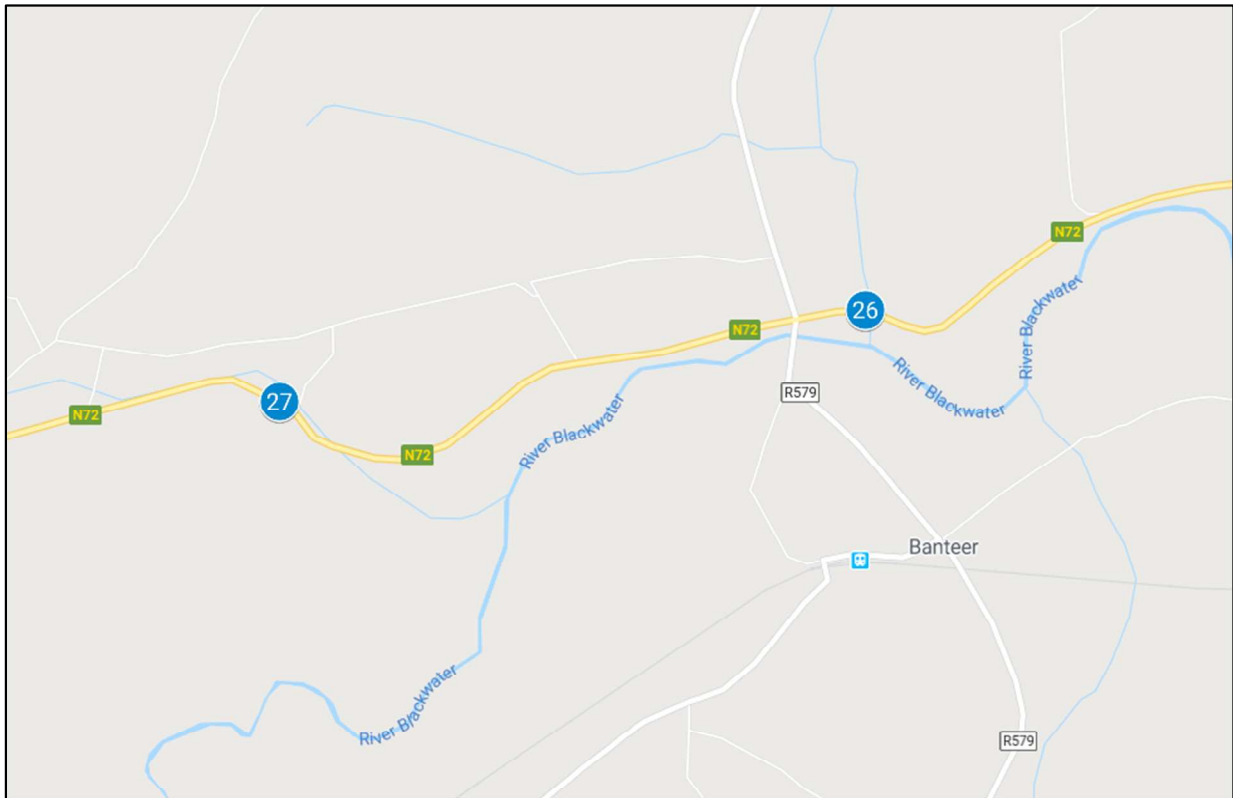
Ballinagree Wind Farm RSR
104068

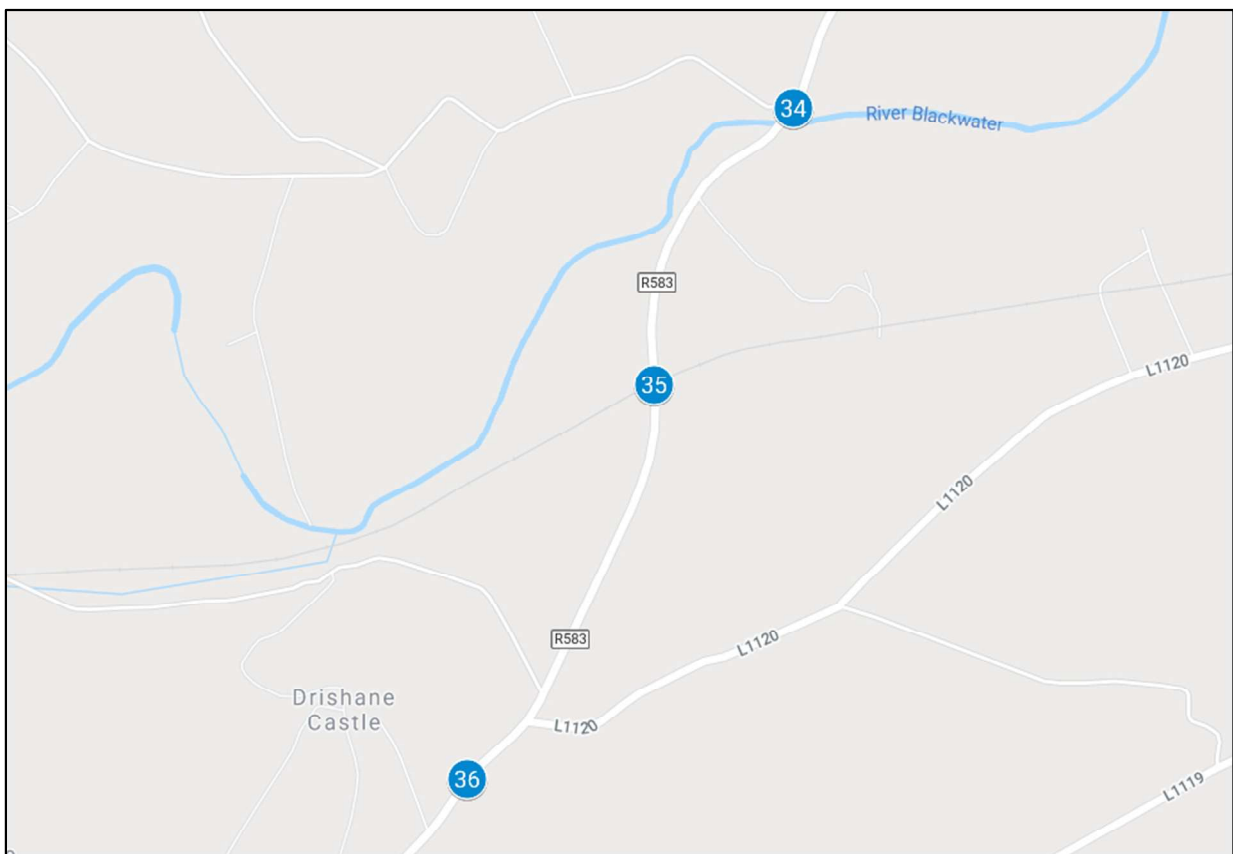


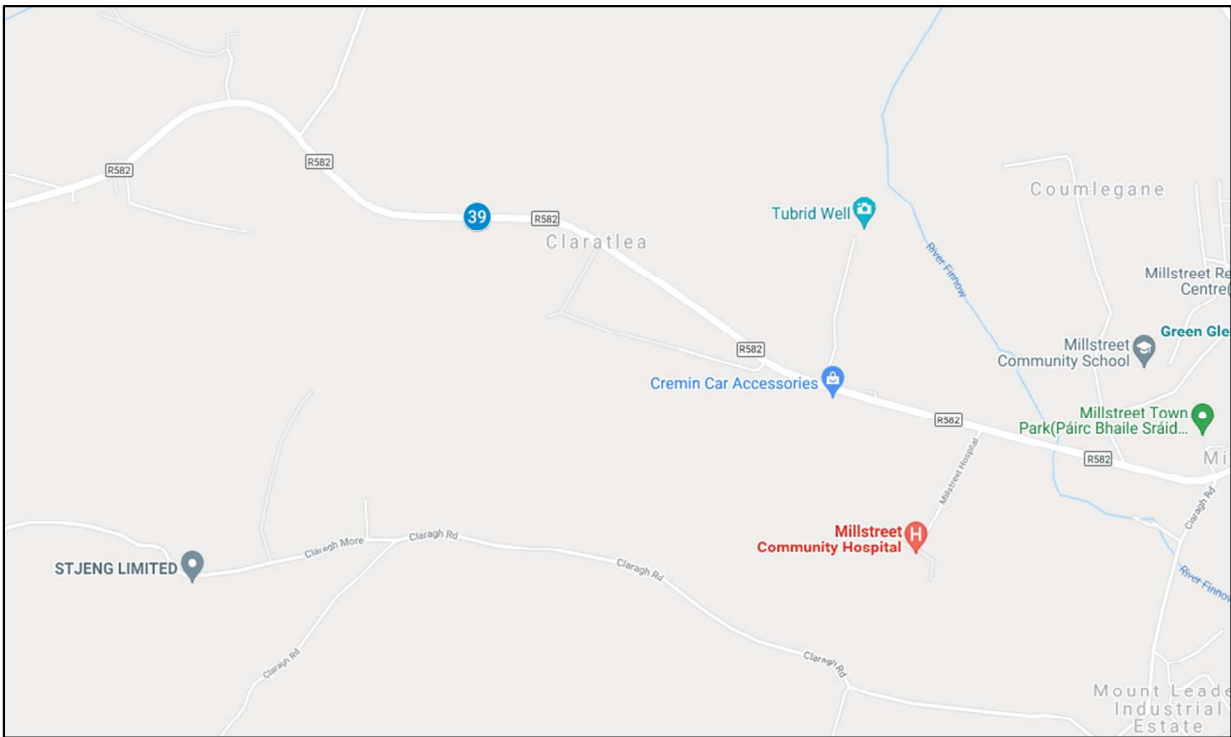
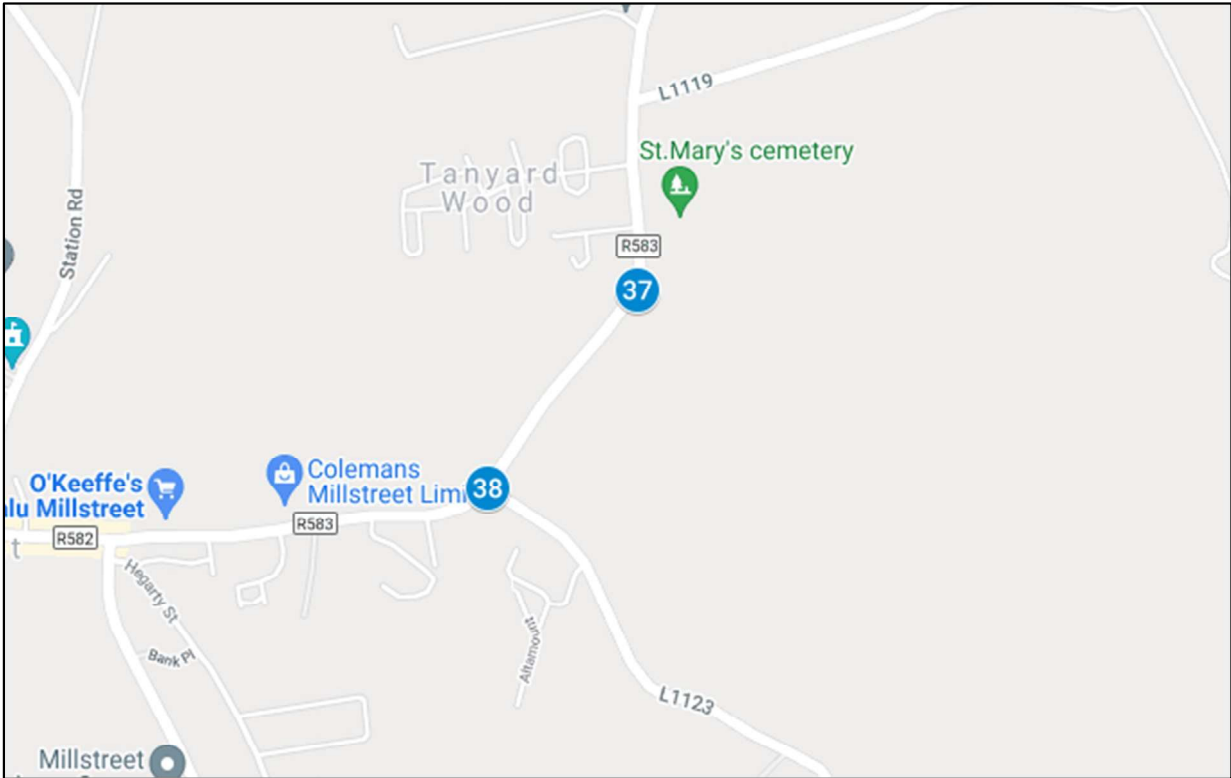


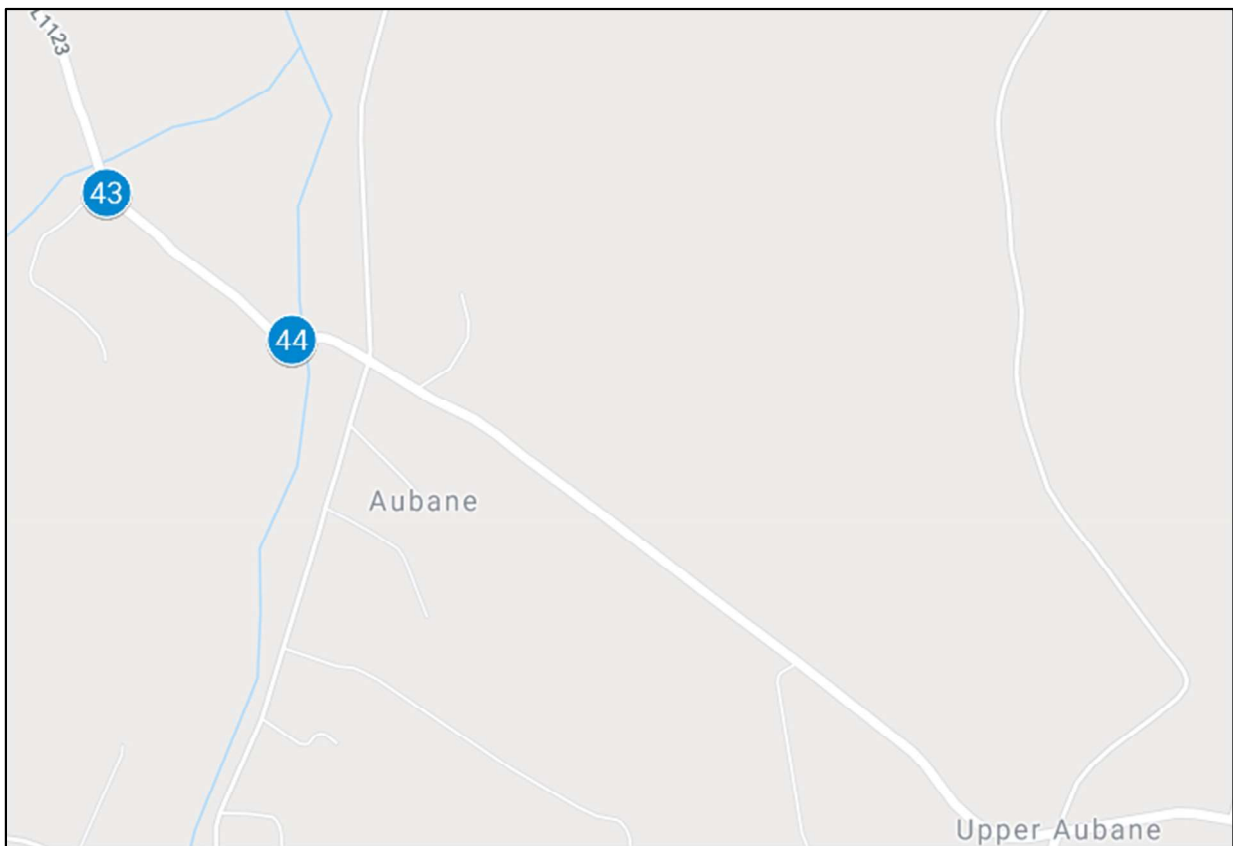
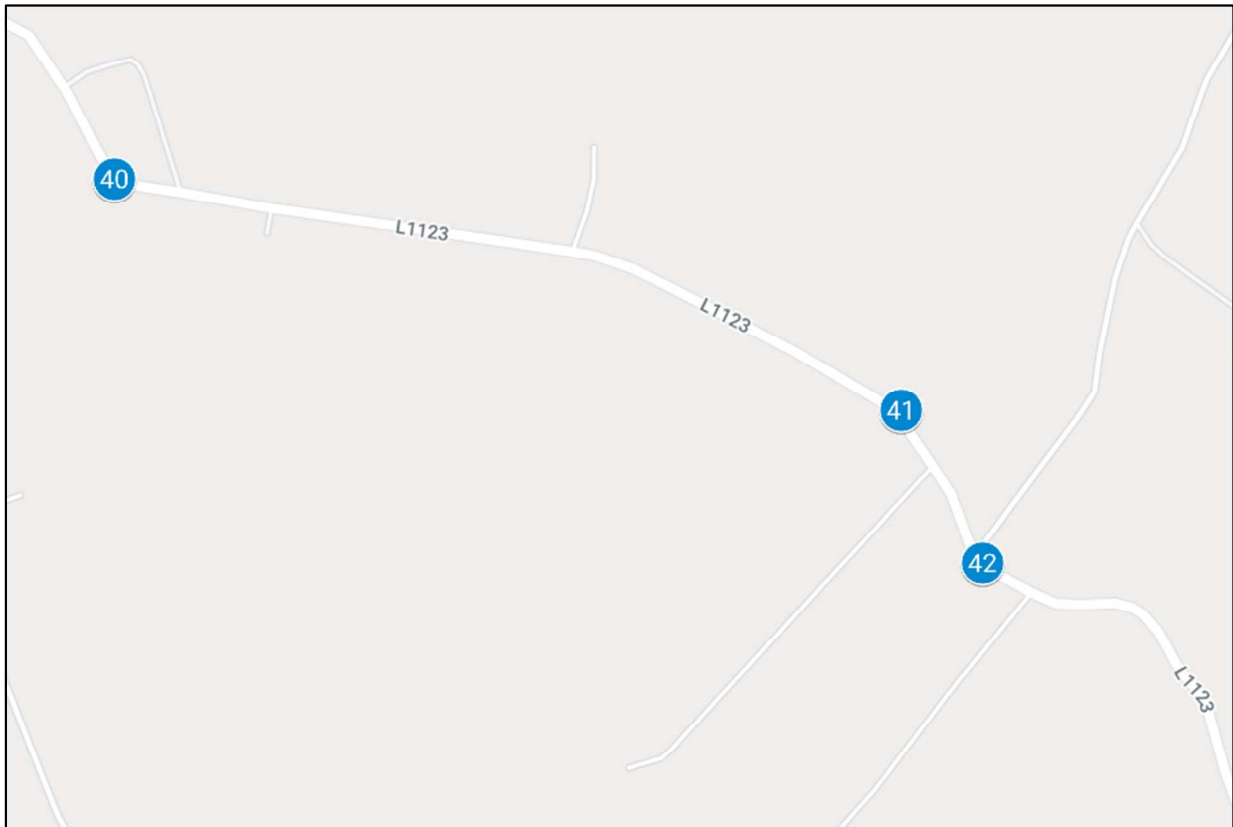








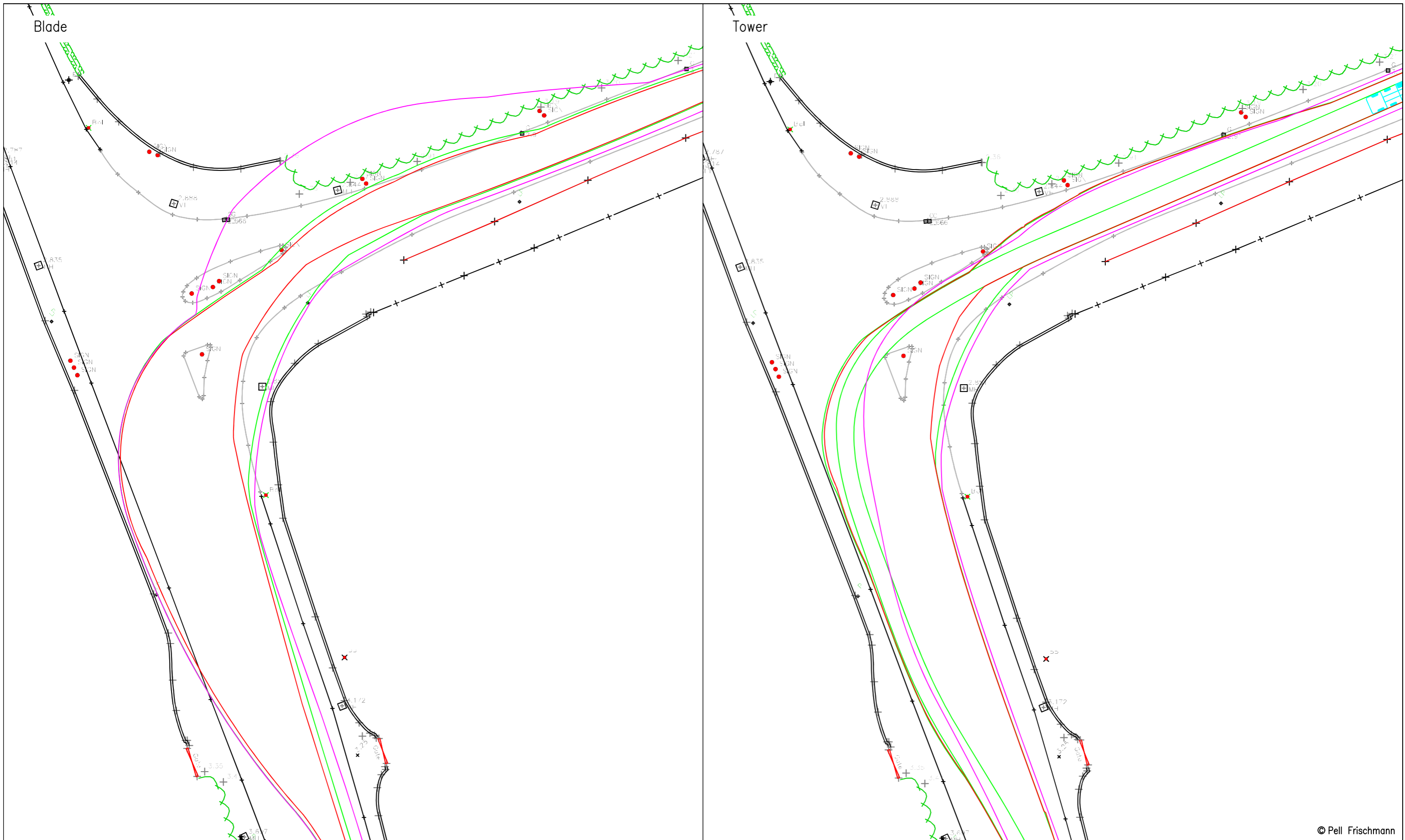






Appendix B

Swept Path Assessments



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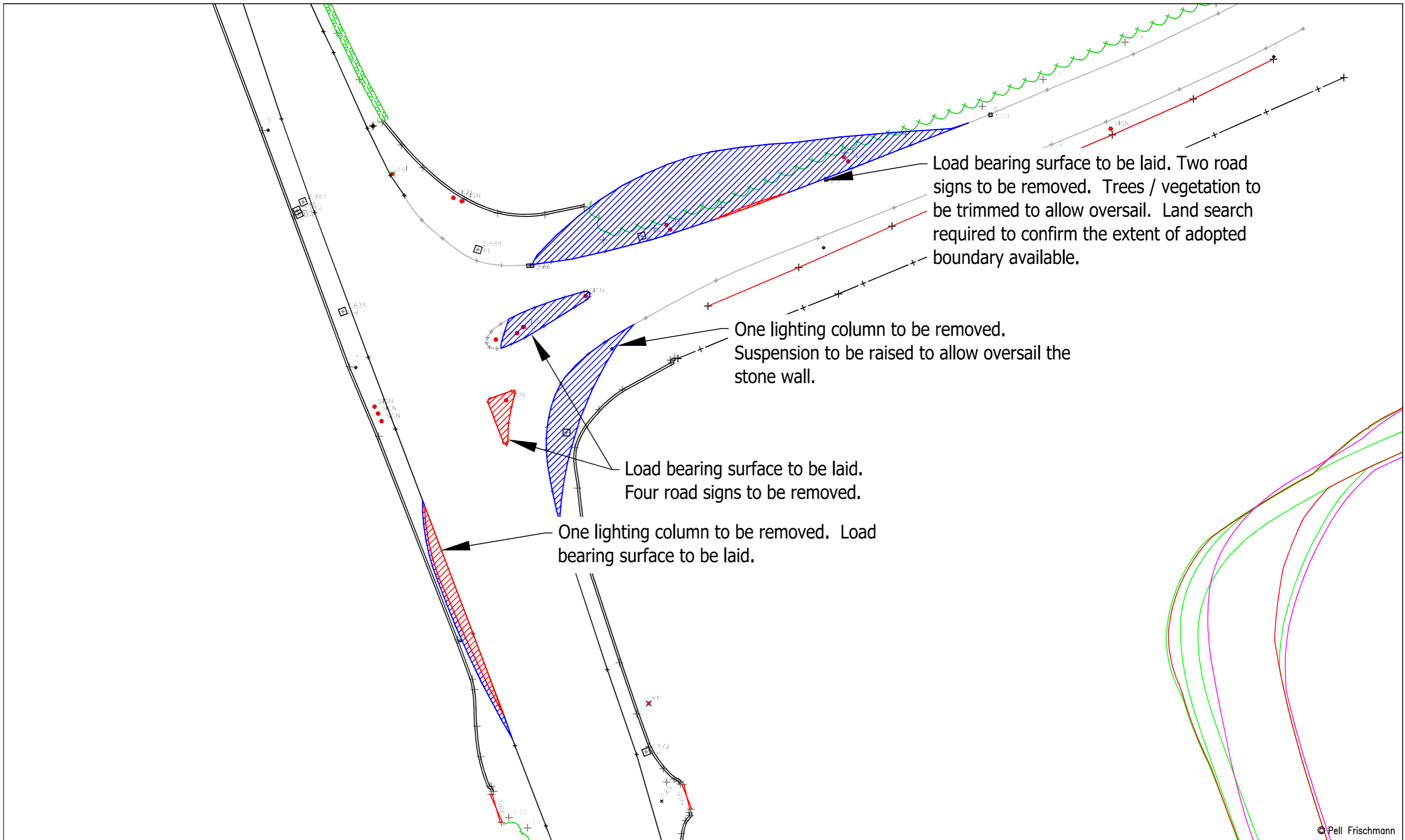
Client: **Fehily Timoney**

Key

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

| | |
|---------------|--|
| Project | Ballinagree Wind Farm |
| Drawing Title | Siemens SGRE 6-155m and Mid Tower |
| SPA Location | Foynes Access Road / N69 Junction - Option 3 |

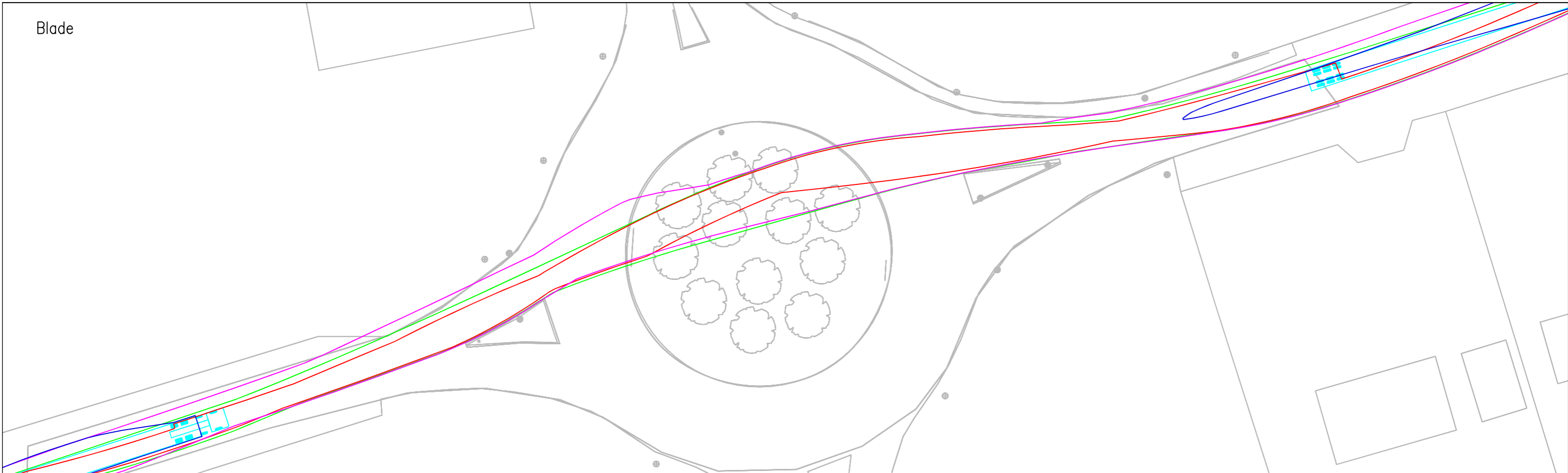
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| Drawn | CN | 22/12/2021 | Name | Date | Scale | Custom @ A3 |
| Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg | | |
| Checked | GB | 22/12/2021 | Drawing Status | Draft | | |
| Point of Interest | 2 | | Drawing No. | SK01 | | |
| Notes: | | | | | | Revision |
| 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | | | | | 1 |



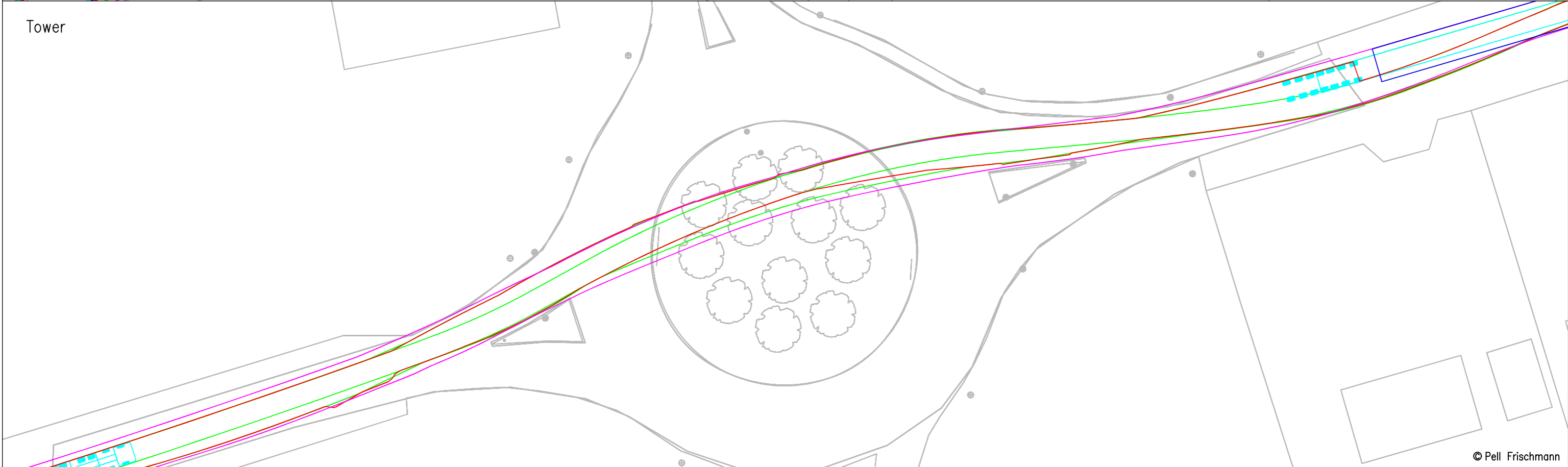
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|--|---|--|-------------------|----|------------|----------------|------------|-------------|--|
| Pell Frischmann 93 GEORGE STREET, EDINBURGH, EH2 3ES Tel: +44 (0)131 240 1270 Email: pfe@pellfrischmann.com www.pellfrischmann.com | Project | Ballinagree Wind Farm | Name | CN | Date | 22/12/2021 | Scale | Custom @ A3 | |
| | Client | Fehily Timoney | Drawn | CN | Designed | CN | 21/12/2021 | File No | Ballinagree Tracking ITM v6 211221.dwg |
| Key — Wheel SPA — Body SPA — Load SPA — Indicative Over-run Over-sail | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Checked | GB | 22/12/2021 | Drawing Status | Draft | | |
| | SPA Location | Foynes Access Road / N69 Junction – Option 3 | Point of Interest | 2 | | Drawing No. | SK01A | Revision | 1 |
| | Notes: 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | | | | | | | |

Blade



Tower



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Project

Ballinagree Wind Farm

| | | | | |
|-------------------|----|------------|----------------|--|
| Drawn | CN | 22/12/2021 | Scale | 1:500 @ A3 |
| Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg |
| Checked | GB | 22/12/2021 | Drawing Status | Draft |
| Point of Interest | 9 | | Revision | 1 |

Client

Fehily Timoney

Drawing Title

Siemens SGRE 6-155m and Mid Tower

Key

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

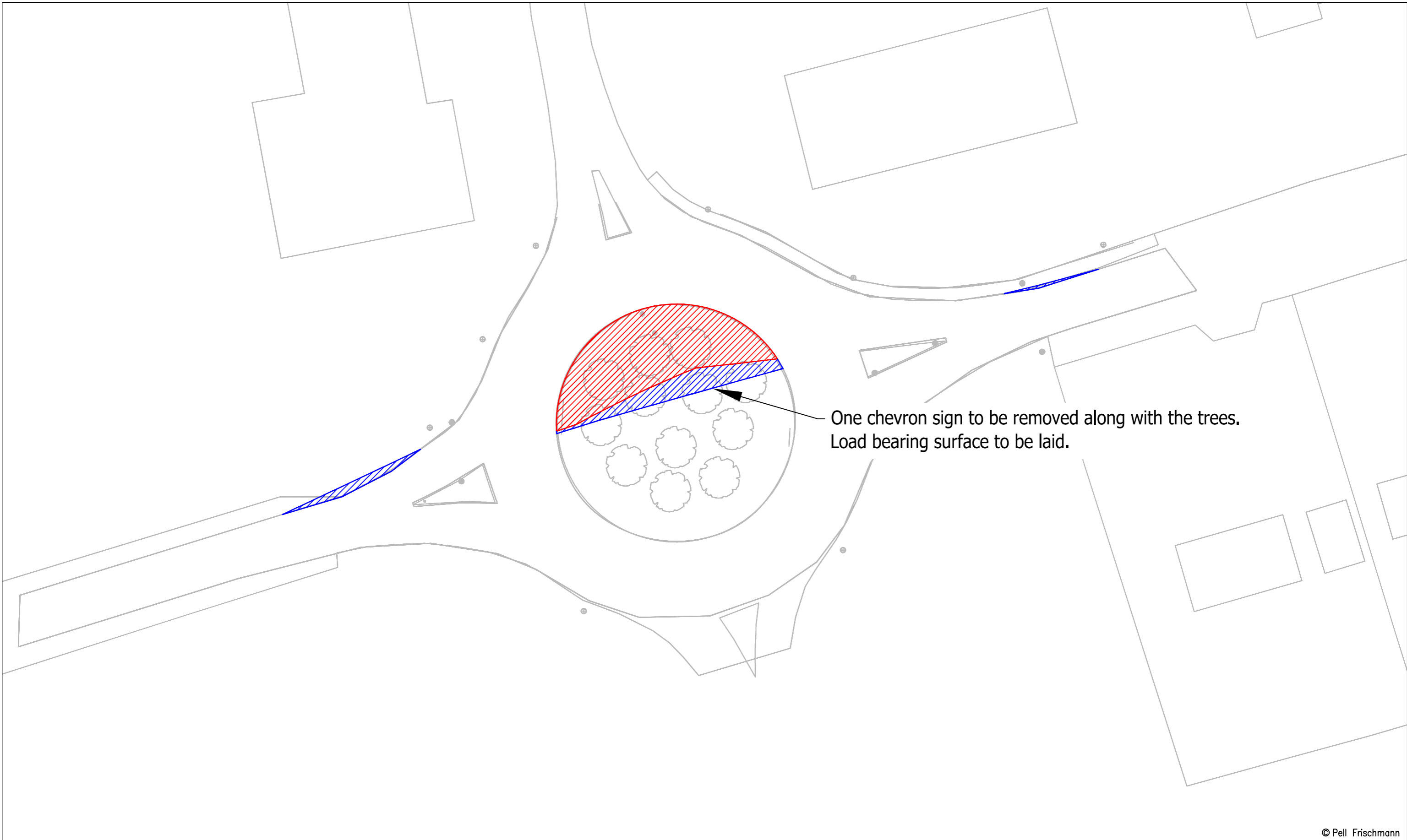
SPA Location

N69 Clarina Roundabout

Drawing No.

SK02

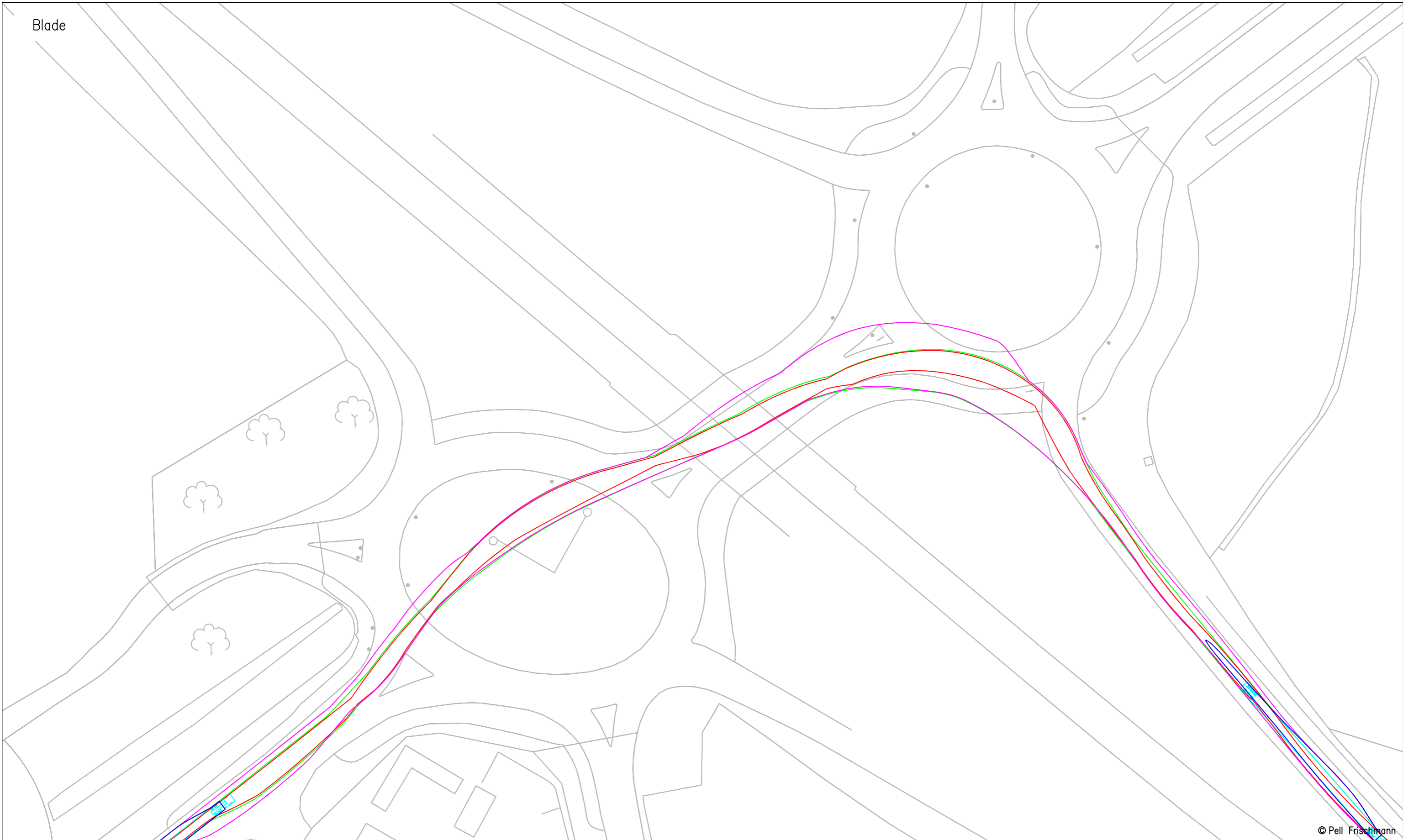
Notes:
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 2. Not for construction.
 3. Where aerial imagery has been utilized, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilizing a topographical survey.



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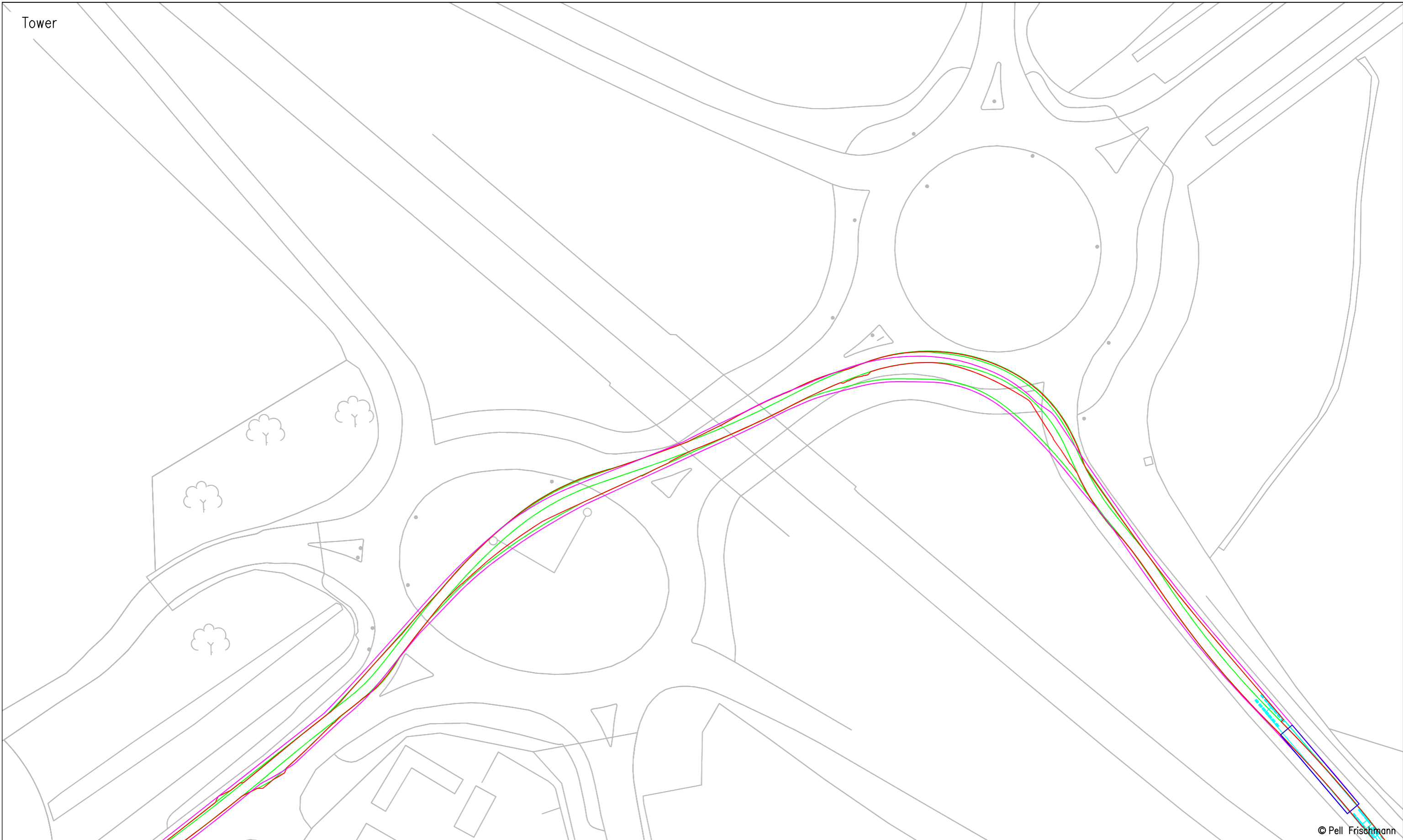
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| | Client | Fehily Timoney | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg | |
| Key Wheel SPA Body SPA Load SPA Indicative Over-run Over-sail | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Checked | GB | 22/12/2021 | Drawing Status | Draft | |
| | SPA Location | N69 Clarina Roundabout | Point of Interest | 9 | | Drawing No. | SK02A | Revision |
| | | | <small>Notes:</small> 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilized, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilizing a topographical survey. | | | | | |

Blade



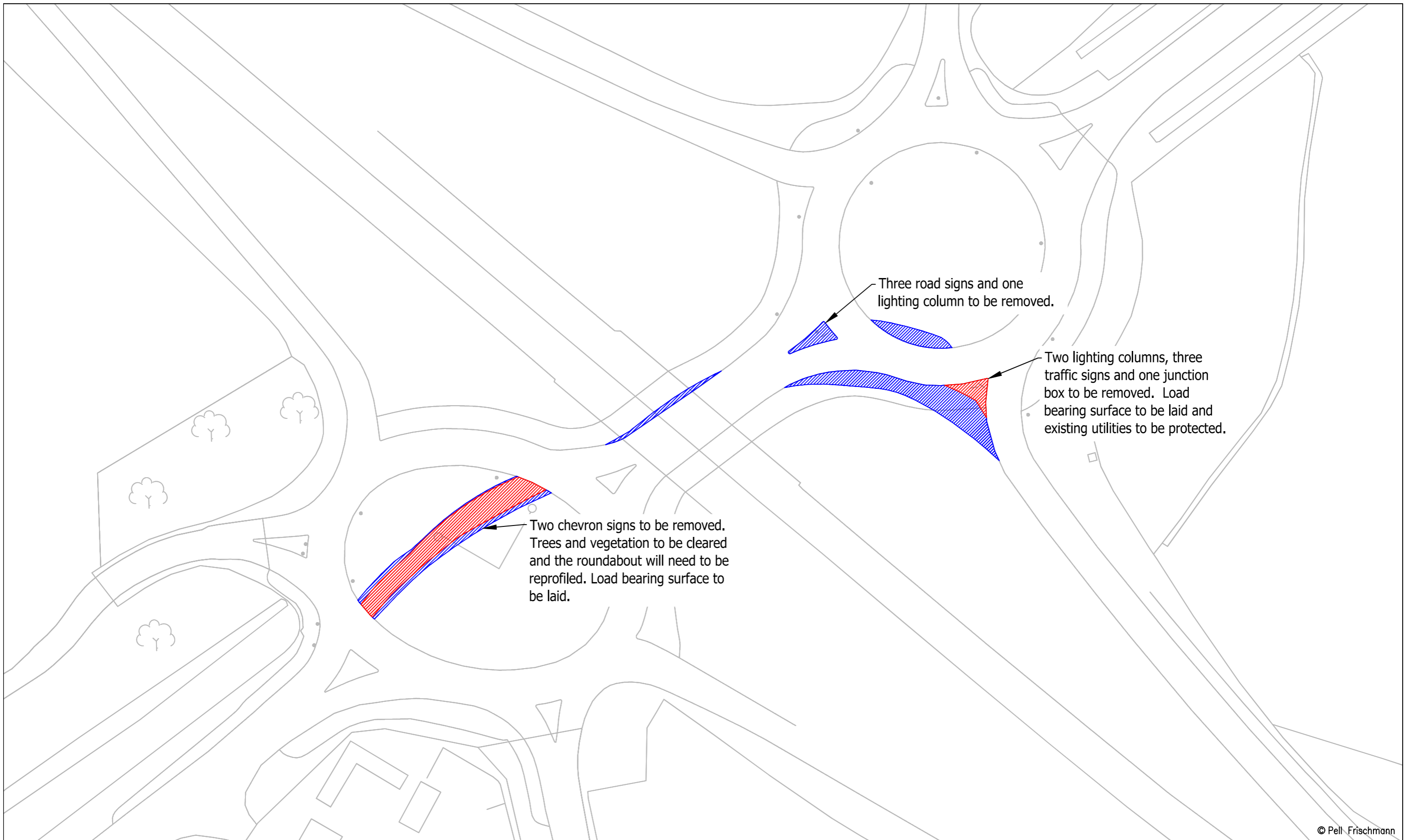
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| Pell Frischmann 93 GEORGE STREET, EDINBURGH, EH2 3ES Tel: +44 (0)131 240 1270 Email: pfe@pellfrischmann.com www.pellfrischmann.com | Project | Ballinagree Wind Farm | Drawn | CN | 22/12/2021 | Scale | 1:1000 @ A3 | |
| | Client | Fehily Timoney | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg | |
| Key — Wheel SPA — Body SPA — Load SPA — Indicative Over-run Over-sail | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Checked | GB | 22/12/2021 | Drawing Status | Draft | |
| | SPA Location | N69 Dock Road Roundabouts | Point of Interest | 10,11 | | Drawing No. | SK03 | Notes: |
| | | | | | | | 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | 1 |



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| | Client | Fehily Timoney | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg | |
| Key — Wheel SPA — Body SPA — Load SPA — Indicative Over-run Over-sail | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Checked | GB | 22/12/2021 | Drawing Status | Draft | |
| | SPA Location | N69 Dock Road Roundabouts | Point of Interest | 10,11 | | Drawing No. | <small>Notes:</small> 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilized, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilizing a topographical survey. | Revision |



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| | Client | Fehily Timoney | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg | |
| Key — Wheel SPA — Body SPA — Load SPA — Indicative Over-run Over-sail | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Checked | GB | 22/12/2021 | Drawing Status | Draft | |
| | SPA Location | N69 Dock Road Roundabouts | Point of Interest | 10,11 | | Drawing No. | SK03B | Revision |
| | | | <small>Notes:</small> 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | | | | |

Blade



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| | | | | | | | | |
|--|--------------|-----------------------|-------------------|-----------------------------------|------------|----------------|---|-------------|
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| | Client | Fehily Timoney | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Designed | CN | 21/12/2021 | File No |
| Key — Wheel SPA — Body SPA — Load SPA — Indicative Over-run Over-sail | SPA Location | N18 Junction 1 | Checked | GB | 22/12/2021 | Drawing Status | Draft | |
| | | | Point of Interest | 12 | | Drawing No. | SK04 | Notes: |
| | | | | | | | 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | 1 |



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| | Client | Fehily Timoney | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Drawn | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg |
| Key — Wheel SPA — Body SPA — Load SPA — Indicative Over-run Over-sail | SPA Location | N18 Junction 1 | Checked | GB | 22/12/2021 | Drawing Status | Draft | | |
| | | | | Point of Interest | 12 | | Drawing No. | SK04A | Revision |
| | | | <small>Notes:</small> 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | | | | | |



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|--|--------------|-----------------------|-------------------|-----------------------------------|------------|----------------|----------|-------------|---|
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| | Client | Fehily Timoney | Drawing Title | Siemens SGRE 6-155m and Mid Tower | | Designed | CN | 21/12/2021 | File No. |
| Key Wheel SPA Body SPA Load SPA Indicative Over-run Over-sail | SPA Location | N18 Junction 1 | Checked | GB | 22/12/2021 | Drawing Status | Draft | | |
| | | | Point of Interest | 12 | | Drawing No. | SK04B | Notes: | 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. |
| | | | | | | | Revision | 1 | |

Blade



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|--|---------------|-----------------------------------|--|-------------------|----|------------|----------------|---|-------------|----------|
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| | Client | Fehily Timoney | | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg | | |
| Key — Wheel SPA — Body SPA — Load SPA — Indicative Over-run Over-sail | Drawing Title | Siemens SGRE 6-155m and Mid Tower | | Checked | GB | 22/12/2021 | Drawing Status | Draft | | |
| | SPA Location | N21 / N20 Junction 5 | | Point of Interest | 13 | | Drawing No. | SK05 | Notes: | Revision |
| | | | | | | | | 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | 1 | |

Tower



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| | Client | Fehily Timoney | Drawing Title | Siemens SGRE 6-155m and Mid Tower | | Designed | CN | 21/12/2021 | File No. |
| Key — Wheel SPA — Body SPA — Load SPA — Indicative Over-run Over-sail | SPA Location | N21 / N20 Junction 5 | Checked | GB | 22/12/2021 | Point of Interest | 13 | Drawing Status | Draft |
| | | | Drawing No. | SK05A | | Notes: | 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | Revision |

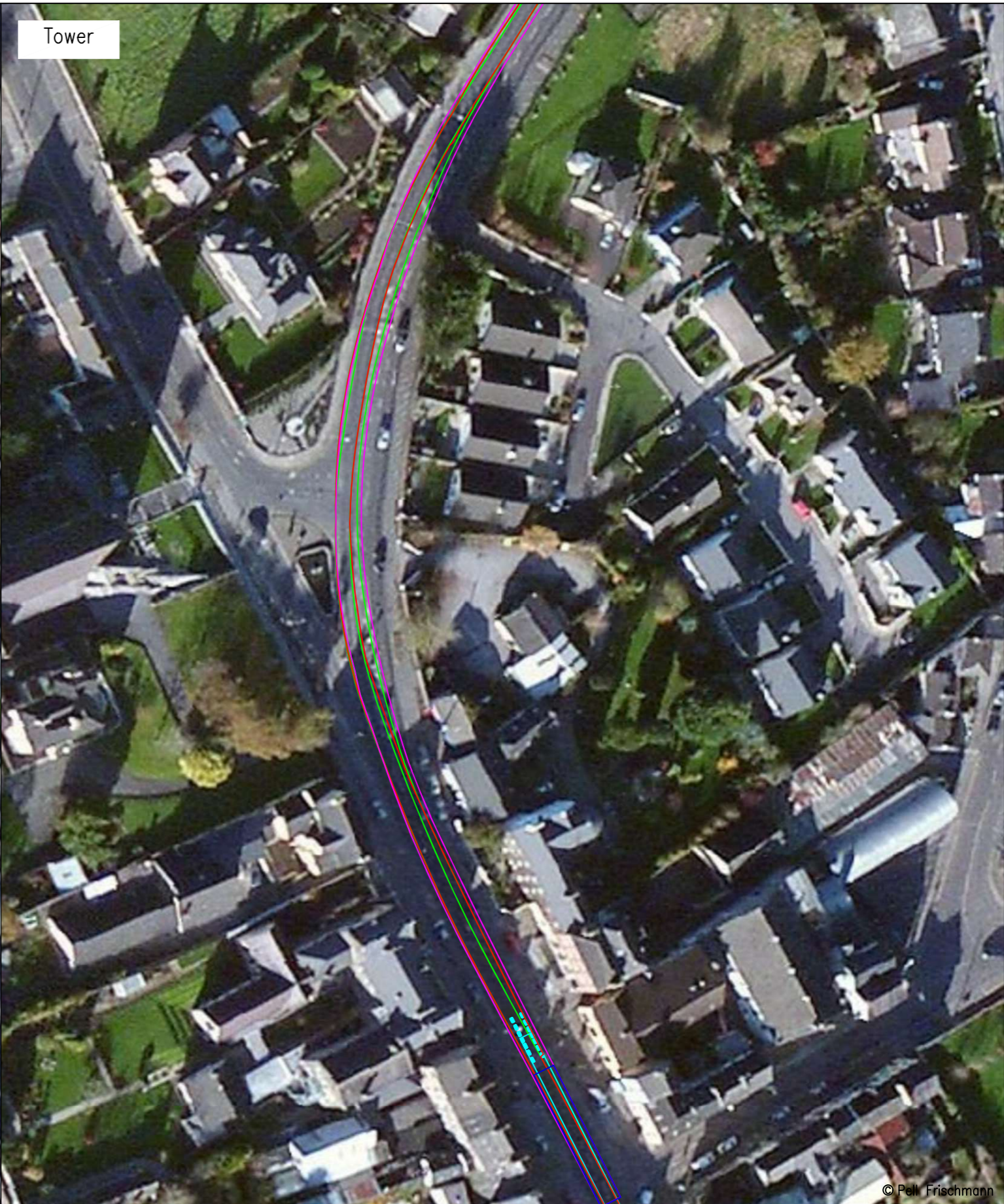
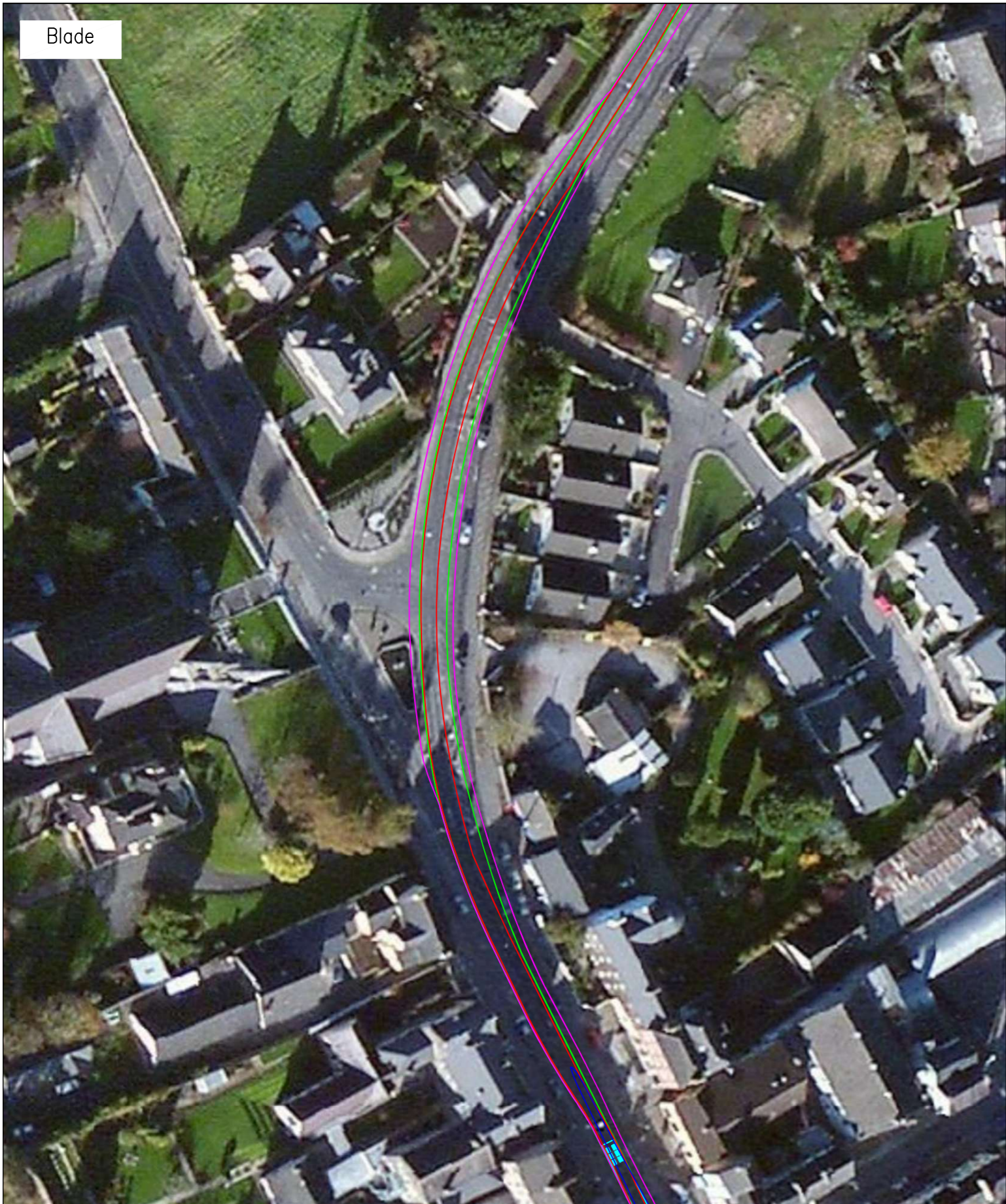


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| | Client | Fehily Timoney | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg |
| Key Wheel SPA Body SPA Load SPA Indicative Over-run Over-sail | SPA Location | N21 / N20 Junction 5 | Checked | GB | 22/12/2021 | Point of Interest | 13 | Drawing Status | Draft |
| | | | Drawing No. | SK05B | <small>Notes:</small> 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | | | Revision |

Blade

Tower



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Project

Ballinagree Wind Farm

Name

Date

Scale

Custom @ A3

Drawn

CN

22/12/2021

File No

Ballinagree Tracking ITM v6 211221.dwg

Designed

CN

21/12/2021

Checked

GB

22/12/2021

Drawing Status

Draft

Point of Interest

15

Drawing No.

SK06

Notes:
1. A test run should be carried out to confirm swept path analyses prior to construction.
2. Not for construction.
3. Where aerial imagery has been utilized, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilizing a topographical survey.

Revision

1

Client

Fehily Timoney

Drawing Title

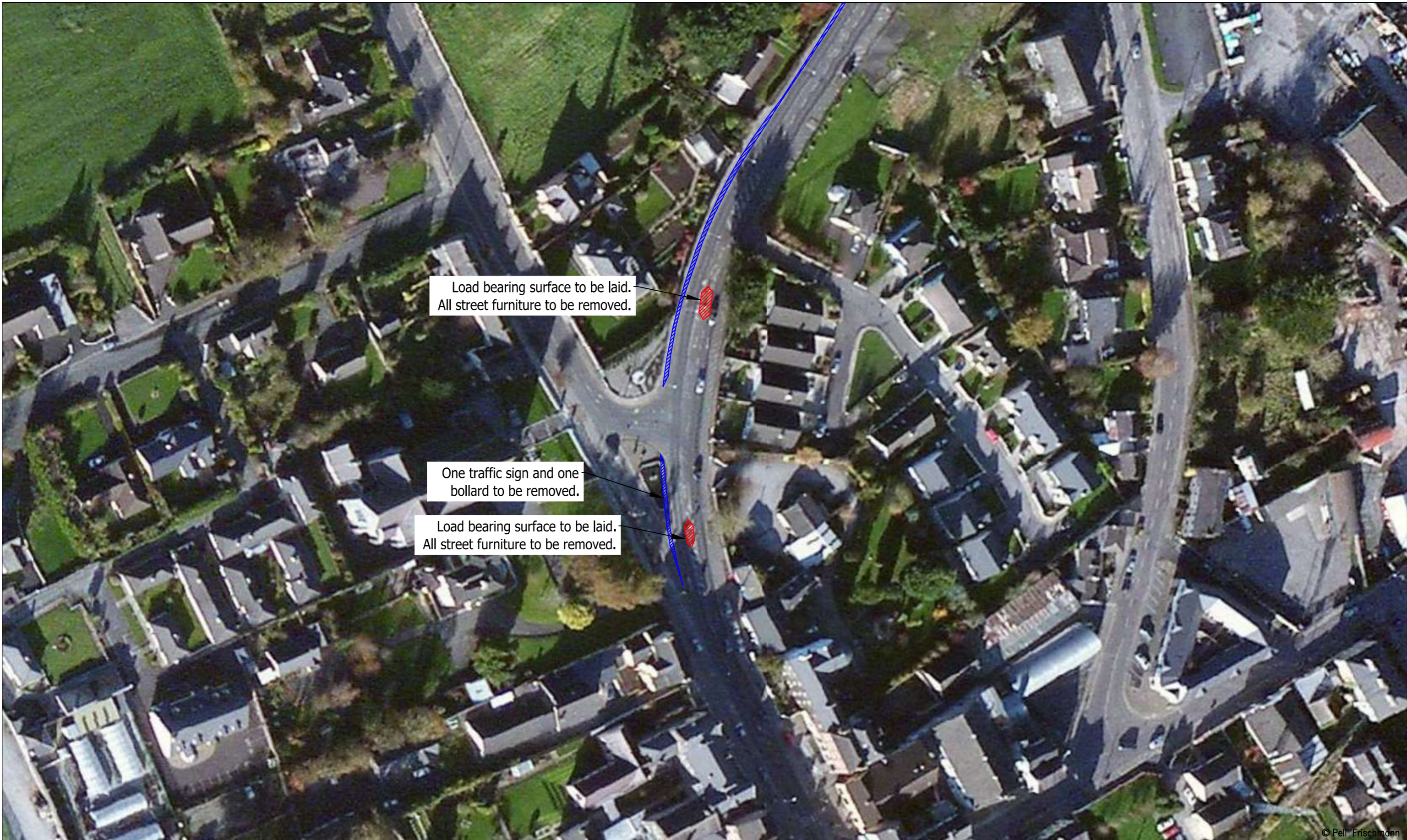
Siemens SGRE 6-155m and Mid Tower

Key

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

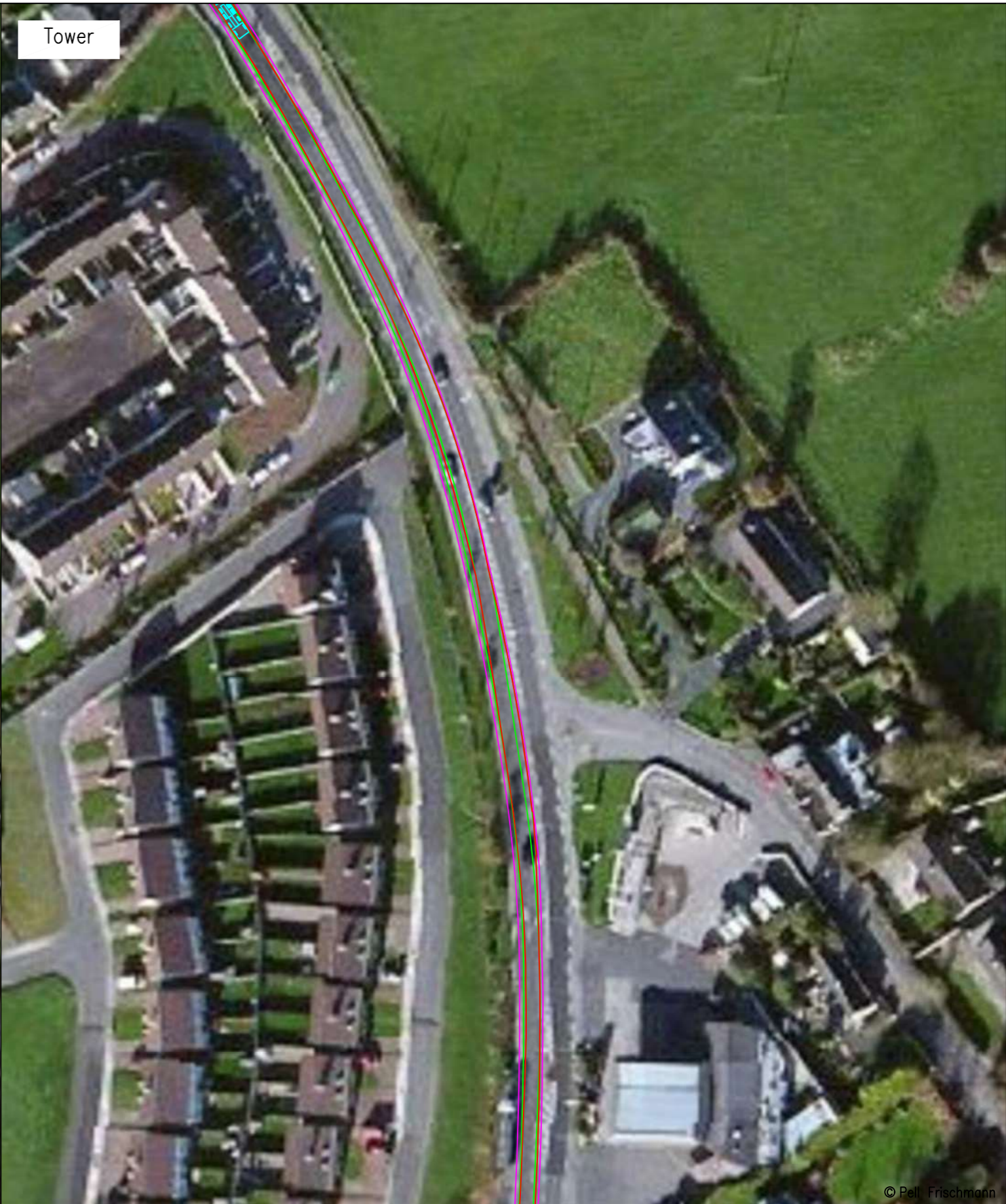
SPA Location

N20 Charleville



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|---|---------------|-----------------------------------|-------------------|---|------------|-------------|-------|-------------|----------|---|
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| | Client | Fehily Timoney | Designed | CN | 21/12/2021 | Checked | GB | 22/12/2021 | | |
| Key Wheel SPA Body SPA Load SPA Indicative Over-run Over-sail | Drawing Title | Siemens SGRE 6-155m and Mid Tower | File No. | Ballinagree Tracking ITM v6 211221.dwg | | | | | | |
| | SPA Location | N20 Charleville | Drawing Status | Draft | | | | | | |
| | | | Point of Interest | 15 | | Drawing No. | SK06A | | | |
| | | | Notes: | 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | | | | Revision | 1 |



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| | Client | Fehily Timoney | Designed | CN | 21/12/2021 | Checked | GB | 22/12/2021 |
| Key Wheel SPA Body SPA Load SPA Indicative Over-run Over-sail | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Point of Interest | 16 | | Drawing Status | Draft | |
| | SPA Location | N20 Exiting Charleville | Drawing No. | SK07 | | Notes: | 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | |
| | | | File No. | Ballinagree Tracking ITM v6 211221.dwg | | Revision | 1 | |



Remove all street furniture to allow oversail.

Remove all street furniture to allow oversail.

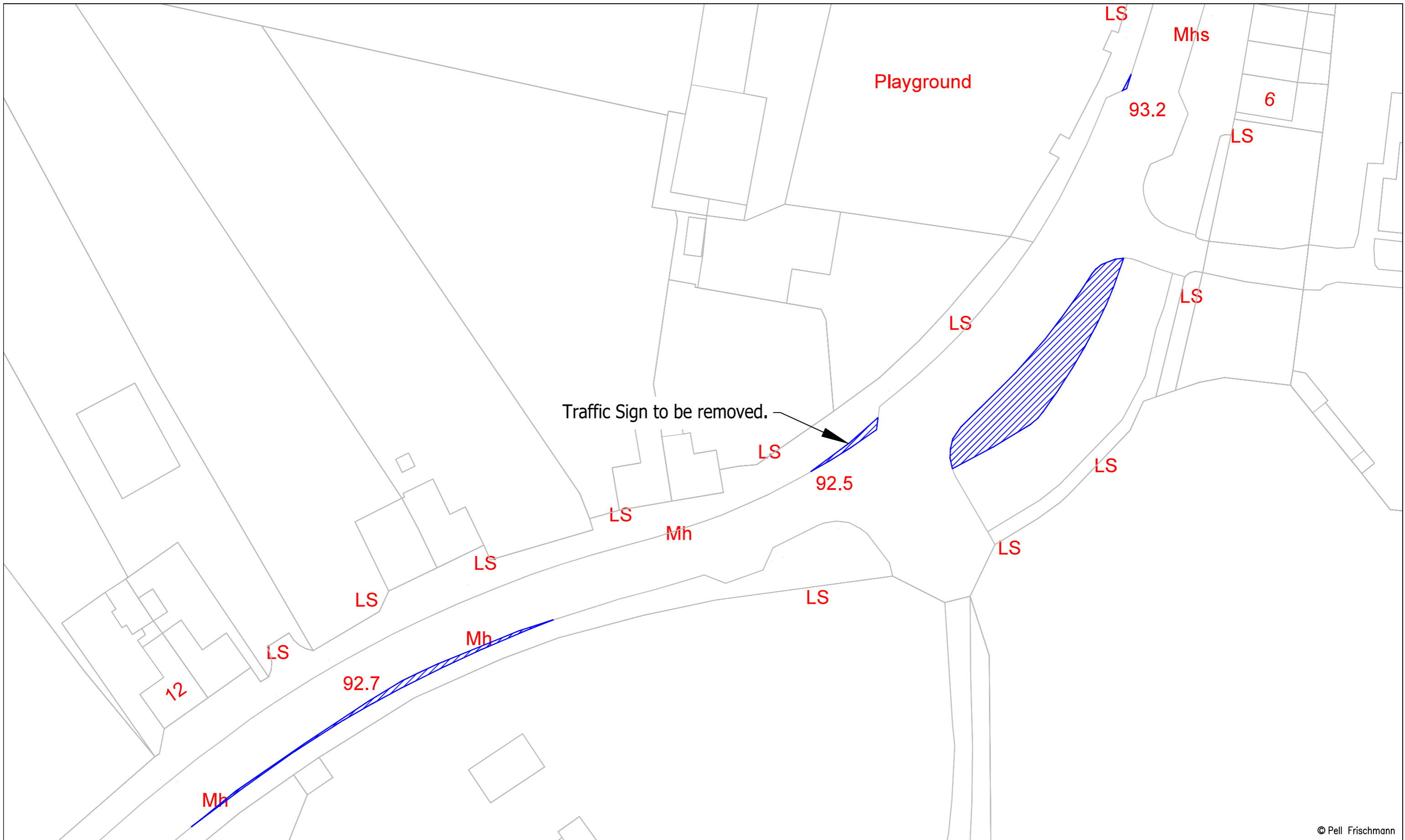
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|---|---------------|-----------------------------------|-------------------|---|------------|-------------|-------|-------------|---|
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| | Client | Fehily Timoney | Designed | CN | 21/12/2021 | Checked | GB | 22/12/2021 | |
| Key Wheel SPA Body SPA Load SPA Indicative Over-run Over-sail | Drawing Title | Siemens SGRE 6-155m and Mid Tower | File No. | Ballinagree Tracking ITM v6 211221.dwg | | | | | |
| | SPA Location | N20 Exiting Charleville | Drawing Status | Draft | | | | | |
| | | | Point of Interest | 16 | | Drawing No. | SK07A | | |
| | | | Notes: | 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | | | Revision | 1 |



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| | Client | Fehily Timoney | | | Drawn | CN | 22/12/2021 | |
| Key Wheel SPA Body SPA Load SPA Indicative Over-run Over-sail | Drawing Title | Siemens SGRE 6-155m and Mid Tower | | | Designed | CN | 21/12/2021 | |
| | SPA Location | N20 Leaving Buttevant | | | Checked | GB | 22/12/2021 | |
| | | Point of Interest | 17 | | File No. Ballinagree Tracking ITM v6 211221.dwg | | | |
| | | Drawing No. | SK08 | | Drawing Status Draft | | | |
| | | Notes: 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | | | | Revision | 1 |



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Client: **Fehily Timoney**

Project: **Ballinagree Wind Farm**

Drawing Title: **Siemens SGRE 6-155m and Mid Tower**

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

SPA Location: **N20 Leaving Buttevant**

| | | | | |
|-------------------|-------|---|----------------|--|
| Drawn | CN | 22/12/2021 | Scale | Custom @ A3 |
| Designed | CN | 21/12/2021 | File No | Ballinagree Tracking ITM v6 211221.dwg |
| Checked | GB | 22/12/2021 | Drawing Status | Draft |
| Point of Interest | | 17 | | |
| Drawing No. | SK08A | Notes: | Revision | |
| | | 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | 1 | |

Blade



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| | Client | Fehily Timoney | | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg | | |
| Key — Wheel SPA — Body SPA — Load SPA — Indicative Over-run Over-sail | Drawing Title | Siemens SGRE 6-155m and Mid Tower | | Checked | GB | 22/12/2021 | Drawing Status | Draft | | |
| | SPA Location | N20 Ballybeg East | | Point of Interest | 18 | | Drawing No. | SK09 | Notes: | Revision |
| | | | NO MITIGATION REQUIRED | | | | <small>1. A test run should be carried out to confirm swept path analyses prior to construction.</small> <small>2. Not for construction.</small> <small>3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey.</small> | | 1 | |



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| | Client | Fehily Timoney | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Designed | CN | 21/12/2021 | File No | Ballinagree Tracking ITM v6 211221.dwg |
| Key — Wheel SPA — Body SPA — Load SPA — Indicative Over-run Over-sail | SPA Location | N20 Ballybeg East | Checked | GB | 22/12/2021 | Drawing Status | Draft | | |
| | | | NO MITIGATION REQUIRED | Point of Interest | 18 | | Drawing No. | SK09A | Revision |
| | | | <small>Notes:</small> 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | | | | | |

Blade



OSI mapping does not identify the road edge through this section and due to tree coverage it is not possible to utilise aerial imagery. A topographical survey should be completed through this section and the swept path assessment repeated to confirm the required mitigation.

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|---|---------------|-----------------------------------|--|--|-------------------|----|------------|----------------|---|-------------|----------|
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| | Client | Fehily Timoney | | | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg | | |
| Key — Wheel SPA — Body SPA — Load SPA — Indicative Over-run Over-sail | Drawing Title | Siemens SGRE 6-155m and Mid Tower | | | Checked | GB | 22/12/2021 | Drawing Status | Draft | | |
| | SPA Location | N20 Ballybeg Bends | | | Point of Interest | 19 | | Drawing No. | SK10 | Notes: | Revision |
| | | | | | | | | | 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | 1 |



OSI mapping does not identify the road edge through this section and due to tree coverage it is not possible to utilise aerial imagery. A topographical survey should be completed through this section and the swept path assessment repeated to confirm the required mitigation.

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| | Client | Fehily Timoney | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg | |
| Key — Wheel SPA — Body SPA — Load SPA — Indicative Over-run Over-sail | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Checked | GB | 22/12/2021 | Drawing Status | Draft | |
| | SPA Location | N20 Ballybeg Bends | Point of Interest | 19 | | Drawing No. | SK10A | Revision |
| <small>Notes:</small> 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | | | | | | | |



Trees to be trimmed and chevron signs to be removed. Loads to oversail both verges through the entire section. Land ownership review is recommended at this location.

OSI mapping does not identify the road edge through this section and due to tree coverage it is not possible to utilise aerial imagery. A topographical survey should be completed through this section and the swept path assessment repeated to confirm the required mitigation.

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| | Client | Fehily Timoney | | Designed | CN | 21/12/2021 | Checked | GB | 22/12/2021 | File No. |
| Key Wheel SPA Body SPA Load SPA Indicative Over-run Over-sail | Drawing Title | Siemens SGRE 6-155m and Mid Tower | | Point of Interest | | 19 | | Drawing Status | | Draft |
| | SPA Location | N20 Ballybeg Bends | | Drawing No. | SK10B | | Notes: | | Revision | |
| | | | | | 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | 1 | | | |

Blade



OSI mapping does not identify the road edge through this section and due to tree coverage it is not possible to utilise aerial imagery. A topographical survey should be completed through this section and the swept path assessment repeated to confirm the required mitigation.

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| | Client | Fehily Timoney | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Drawn | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg |
| Key — Wheel SPA — Body SPA — Load SPA — Indicative Over-run Over-sail | SPA Location | N20 Ballybeg Bends contd. | Checked | GB | 22/12/2021 | Drawing Status | Draft | Revision | 1 |
| | | | Point of Interest | 19 | Drawing No. | SK11 | <small>Notes:</small> 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | |



OSI mapping does not identify the road edge through this section and due to tree coverage it is not possible to utilise aerial imagery. A topographical survey should be completed through this section and the swept path assessment repeated to confirm the required mitigation.

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|--|--------------|---------------------------|---------------|-----------------------------------|--|-------------------|------------|----------------|--|
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| | Client | Fehily Timoney | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg |
| Key — Wheel SPA — Body SPA — Load SPA — Indicative Over-run Over-sail | SPA Location | N20 Ballybeg Bends contd. | Checked | GB | 22/12/2021 | Point of Interest | 19 | Drawing Status | Draft |
| | | | Drawing No. | SK11A | <small>Notes:</small> 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | | Revision | 1 |



Vegetation to be trimmed. Land ownership review is recommended at this location. Loads to oversail both verges through the entire section.

OSI mapping does not identify the road edge through this section and due to tree coverage it is not possible to utilise aerial imagery. A topographical survey should be completed through this section and the swept path assessment repeated to confirm the required mitigation.

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| | Client | Fehily Timoney | Drawn | CN | 21/12/2021 | Designed | CN | 21/12/2021 |
| Key Wheel SPA Body SPA Load SPA Indicative Over-run Over-sail | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Checked | GB | 22/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg | |
| | SPA Location | N20 Ballybeg Bends contd. | Point of Interest | 19 | | Drawing Status | Draft | |
| | | | Drawing No. | SK11B | Notes: | 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | Revision | 1 |

Blade



OSI mapping does not identify the road edge through this section and due to tree coverage it is not possible to utilise aerial imagery. A topographical survey should be completed through this section and the swept path assessment repeated to confirm the required mitigation.

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| | Client | Fehily Timoney | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg | |
| Key — Wheel SPA — Body SPA — Load SPA — Indicative Over-run Over-sail | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Checked | GB | 22/12/2021 | Drawing Status | Draft | |
| | SPA Location | N20 Kilcloosha Bends | Point of Interest | 20 | | Drawing No. | SK12 | |
| | <small>Notes:</small> 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | | | | | Revision | 1 |



OSI mapping does not identify the road edge through this section and due to tree coverage it is not possible to utilise aerial imagery. A topographical survey should be completed through this section and the swept path assessment repeated to confirm the required mitigation.

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|--|---------------|-----------------------------------|-------------------|----|------------|----------------|---|-------------|
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| | Client | Fehily Timoney | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg | |
| Key — Wheel SPA — Body SPA — Load SPA — Indicative Over-run Over-sail | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Checked | GB | 22/12/2021 | Drawing Status | Draft | |
| | SPA Location | N20 Kilcloosha Bends | Point of Interest | 20 | | Drawing No. | SK12A | Notes: |
| | | | | | | | 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | 1 |

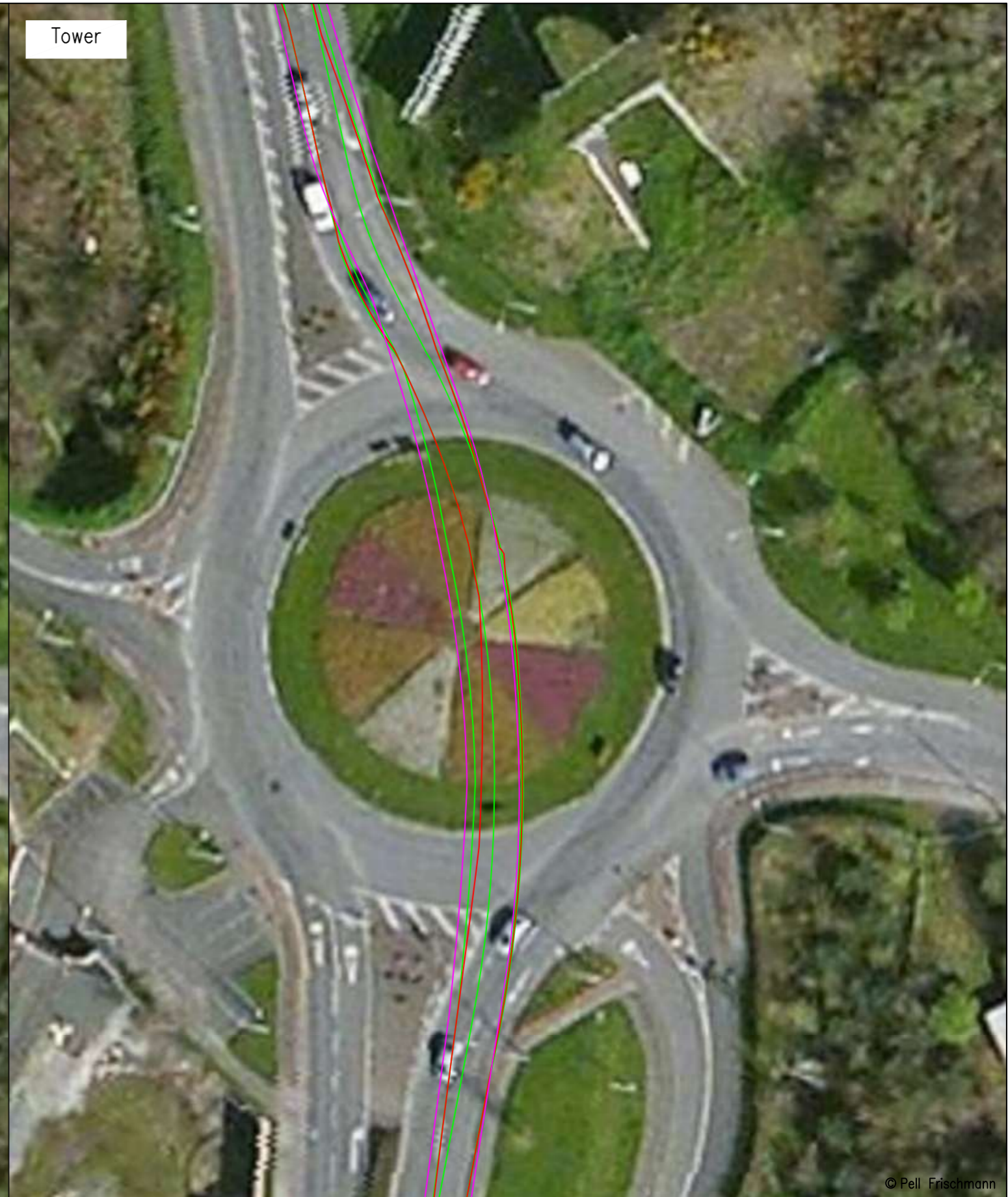
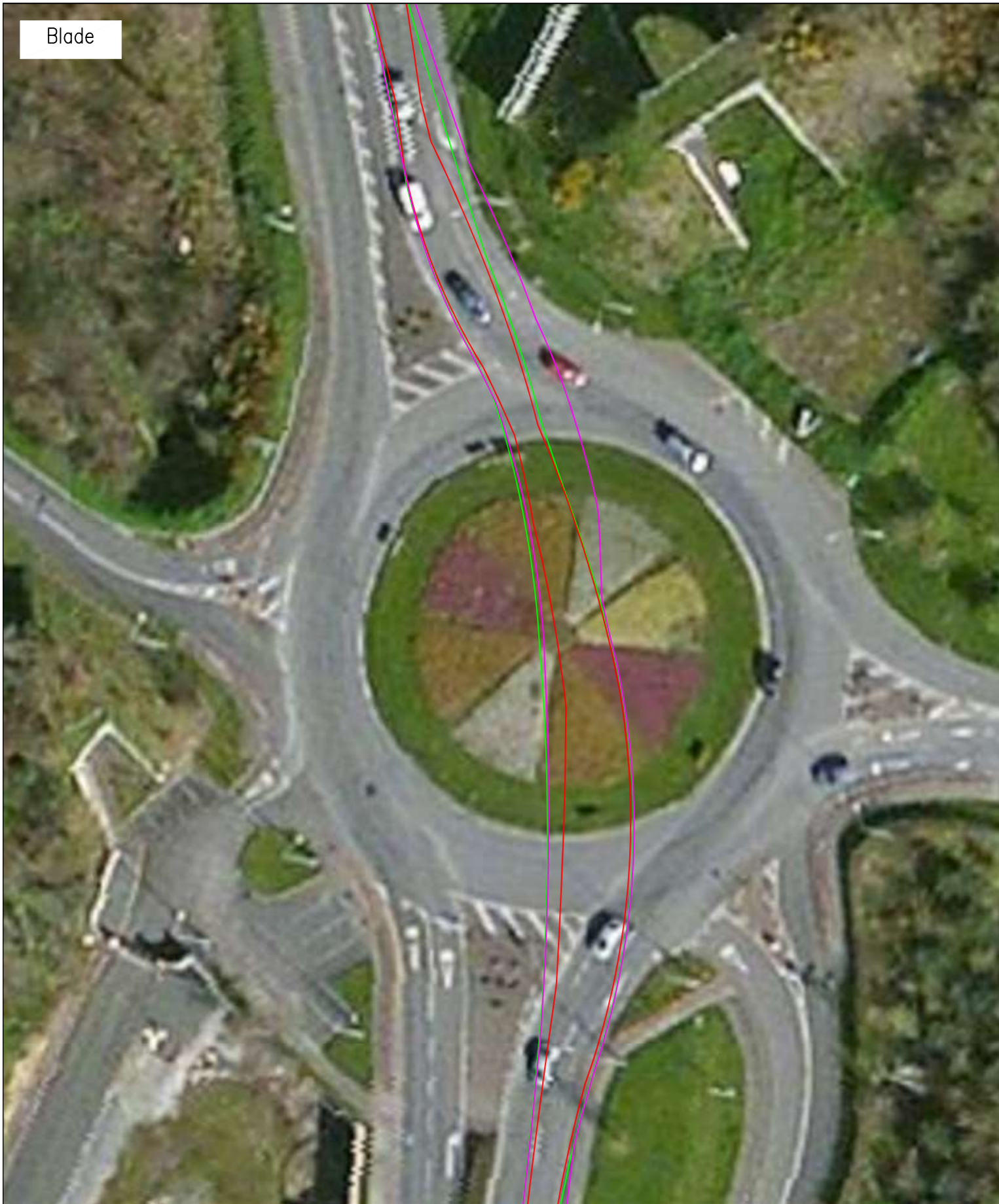


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| | Client | Fehily Timoney | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg | |
| Key — Wheel SPA — Body SPA — Load SPA — Indicative Over-run Over-sail | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Checked | GB | 22/12/2021 | Drawing Status | Draft | |
| | SPA Location | N20 Kilcloosha Bends | Point of Interest | 20 | | Drawing No. | SK12B | Revision |
| <small>Notes:</small> 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | | | | | | | |

Blade

Tower



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Project

Ballinagree Wind Farm

| | | | | |
|-------------|------|------------|-------------------|--|
| | Name | Date | Scale | Custom @ A3 |
| Drawn | CN | 22/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg |
| Designed | CN | 21/12/2021 | Drawing Status | Draft |
| Checked | GB | 22/12/2021 | Point of Interest | 23 |
| Drawing No. | SK13 | Notes: | Revision | 1 |

Client **Fehily Timoney**

Drawing Title

Siemens SGRE 6-155m and Mid Tower

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

SPA Location

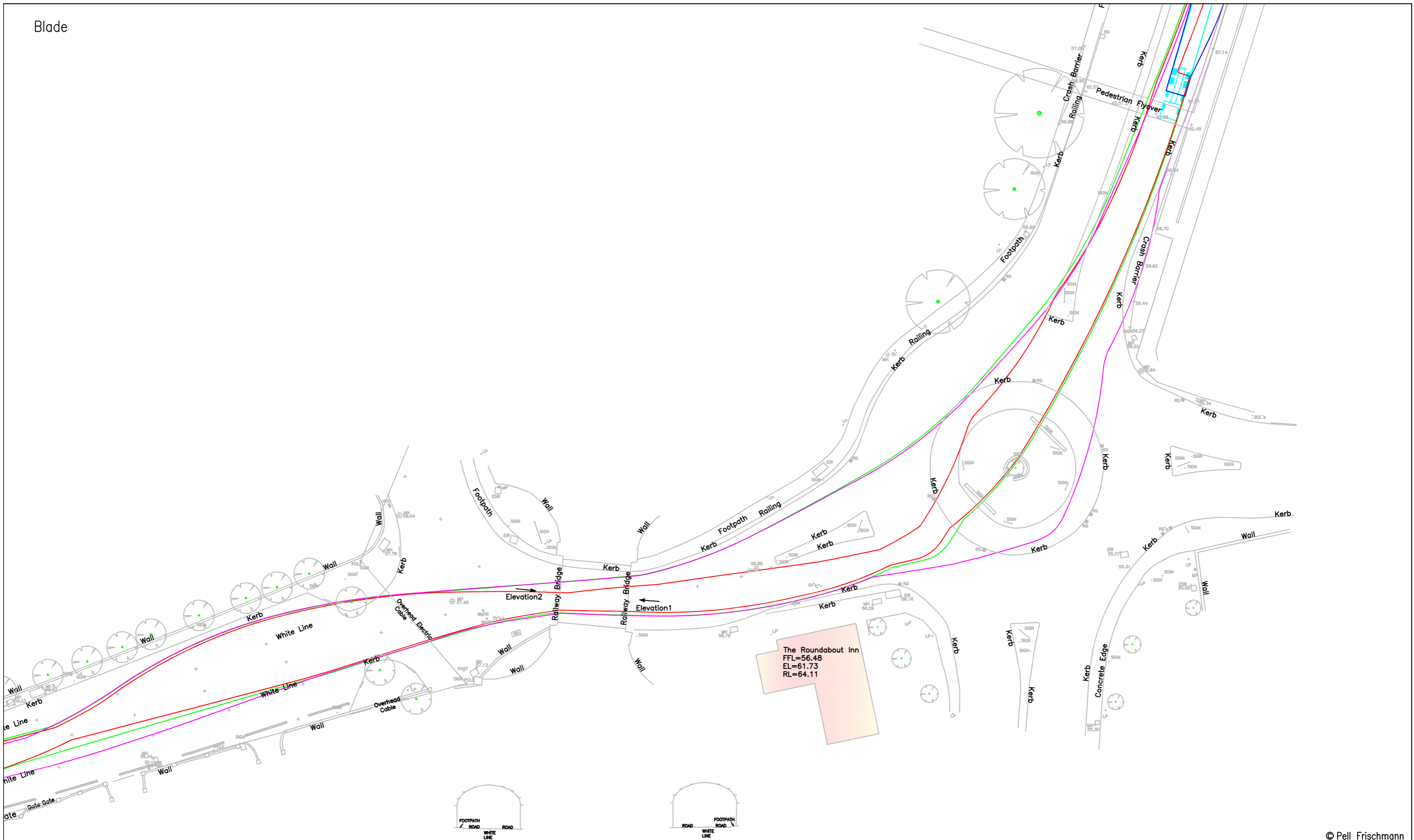
N20 / R883 Roundabout, Mallow

Notes:
1. A test run should be carried out to confirm swept path analyses prior to construction.
2. Not for construction.
3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey.



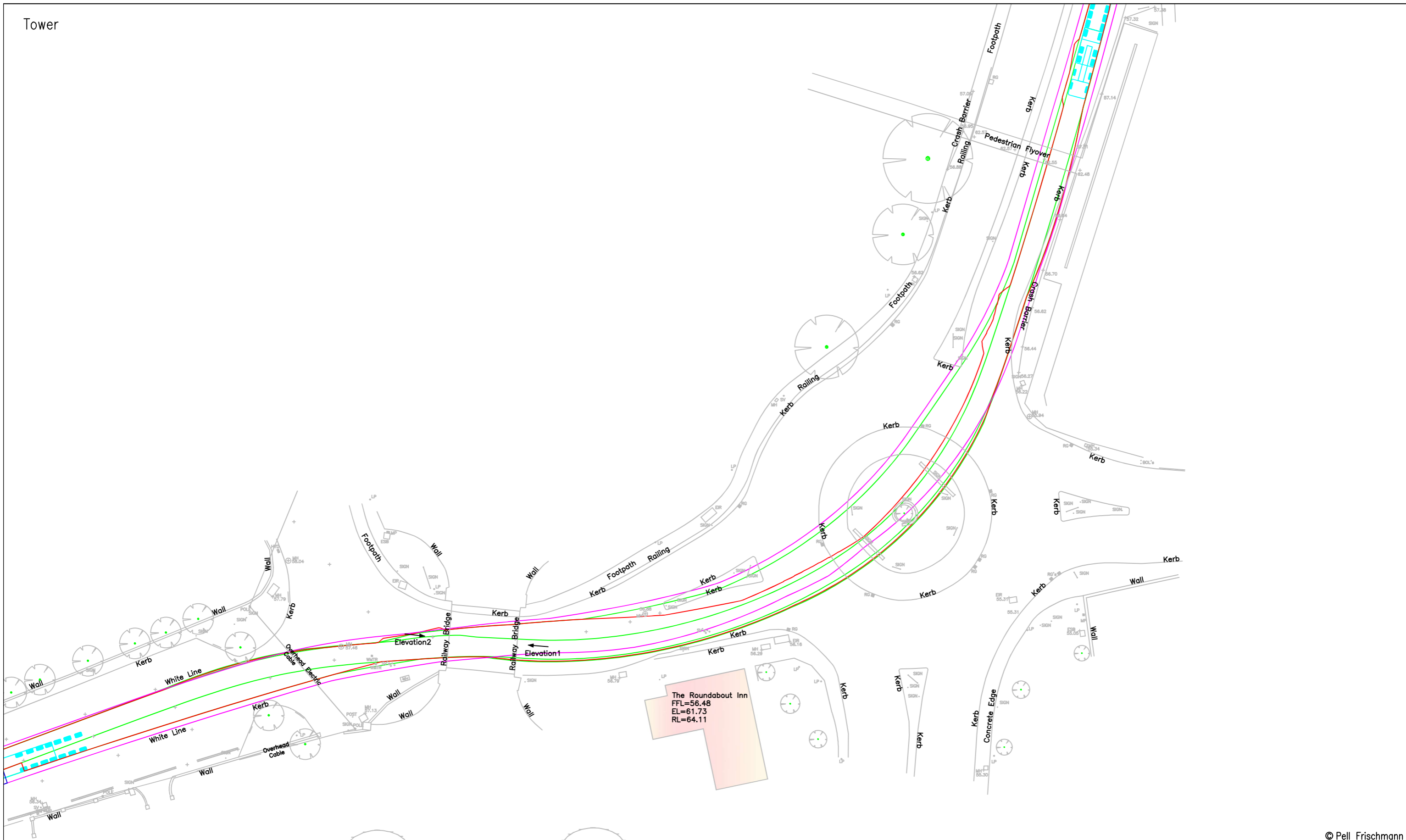
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|---|---------------|-----------------------------------|-------------------|---|------------|----------------|--|------------|
| Pell Frischmann 93 GEORGE STREET, EDINBURGH, EH2 3ES Tel: +44 (0)131 240 1270 Email: pfe@pellfrischmann.com www.pellfrischmann.com | Project | Ballinagree Wind Farm | Name | CN | Date | 22/12/2021 | Scale | 1:500 @ A3 |
| | Client | Fehily Timoney | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg | |
| Key Wheel SPA Body SPA Load SPA Indicative Over-run Over-sail | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Checked | GB | 22/12/2021 | Drawing Status | Draft | |
| | SPA Location | N20 / R883 Roundabout, Mallow | Point of Interest | 23 | | Drawing No. | SK013A | |
| | | | Notes: | 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | | | Revision |



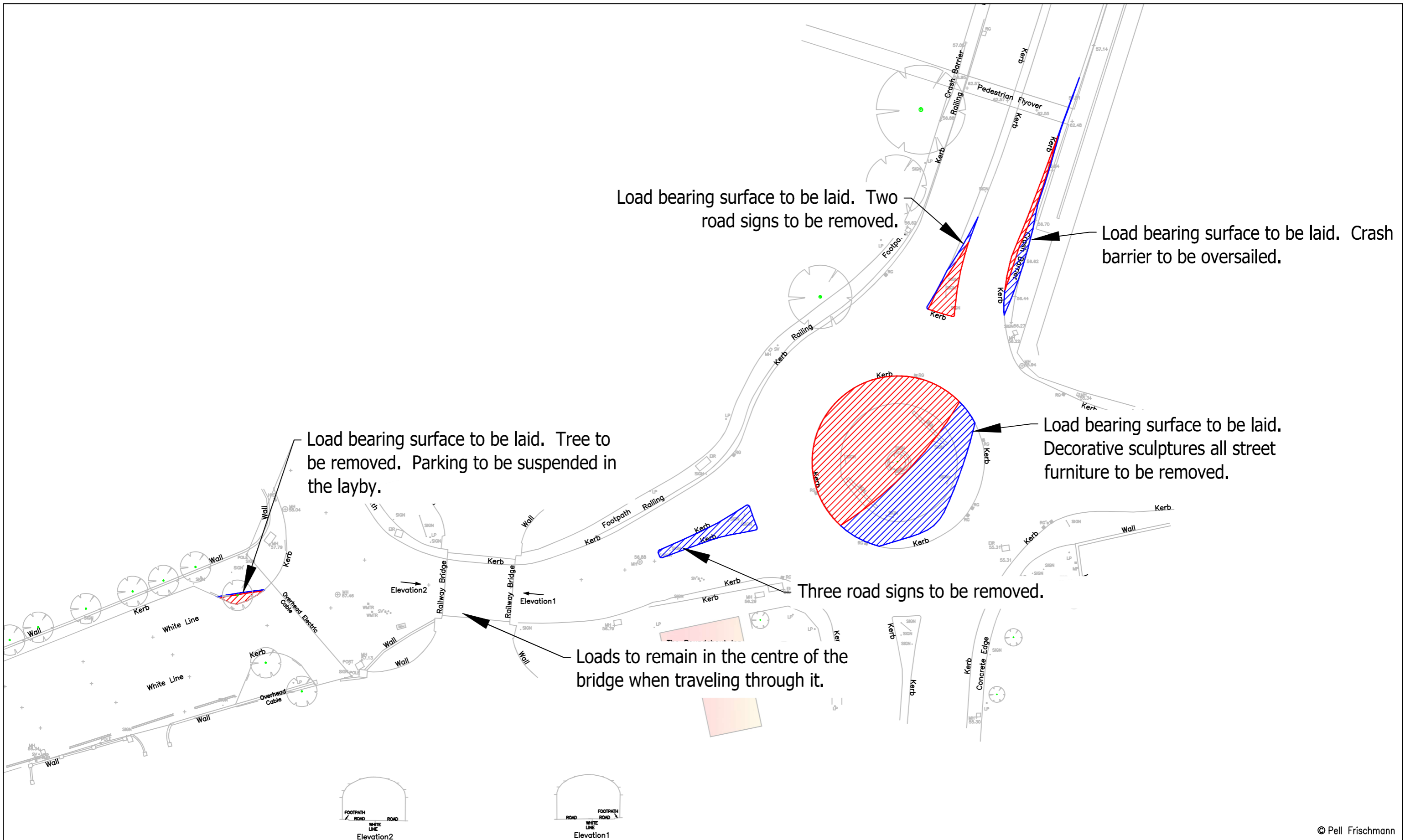
| | | | | | | | | | | |
|--|---------------|-----------------------------------|--|--|---|----|------------|----------------|--|------------|
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| | Client | Fehily Timoney | | | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg | |
| Key Wheel SPA (Red line) Body SPA (Green line) Load SPA (Magenta line) Indicative (Cyan line) Over-run (Red hatched) Over-sail (Blue hatched) | Drawing Title | Siemens SGRE 6-155m and Mid Tower | | | Checked | GB | 22/12/2021 | Drawing Status | Draft | |
| | SPA Location | N20 / N72 Roundabout, Mallow | | | Point of Interest | 24 | | Drawing No. | SK14 | Revision |
| | | | | | Notes: 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilized, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilizing a topographical survey. | | | | | |

Tower



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| | Client | Fehily Timoney | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg | |
| Key | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Checked | GB | 22/12/2021 | Drawing Status | Draft | |
| | SPA Location | N20 / N72 Roundabout, Mallow | Point of Interest | 24 | | Drawing No. | SK14A | Revision |
| | | | Notes: 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | | | | |








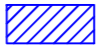
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| | Client | Fehily Timoney | Drawn | CN | 21/12/2021 | Designed | CN | 22/12/2021 |
| Key Wheel SPA (Red line) Body SPA (Green line) Load SPA (Purple line) Indicative (Cyan line) Over-run (Red hatched) Over-sail (Blue hatched) | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Checked | GB | 22/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg | |
| | SPA Location | N20 / N72 Roundabout, Mallow | Point of Interest | 24 | Drawing Status | Draft | Revision | 1 |
| | | | Drawing No. | SK14B | Notes: 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | | |

Blade

A topographical survey should be completed through this section and the swept path assessment repeated to confirm the required mitigation.

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| | Client | Fehily Timoney | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg | |
| Key  Wheel SPA  Body SPA  Load SPA  Indicative  Over-run  Over-sail | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Checked | GB | 22/12/2021 | Drawing Status | Draft | |
| | SPA Location | N72 Coolclogh Bends | Point of Interest | 27 | | Drawing No. | SK16 | Notes: |
| | | | | | | | 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | 1 |



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| | Client | Fehily Timoney | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg |
| Key — Wheel SPA — Body SPA — Load SPA — Indicative Over-run Over-sail | SPA Location | N72 Coolclogh Bends | Checked | GB | 22/12/2021 | Point of Interest | 27 | Drawing Status | Draft |
| | | | | Drawing No. | SK16A | Notes: | 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | Revision |



Ground clearance for load oversail of safety barrier to be confirmed during the test run.
One telegraph pole to be removed.

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

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| | Client | Fehily Timoney | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg |
| Key Wheel SPA Body SPA Load SPA Indicative Over-run Over-sail | SPA Location | N72 Coolclogh Bends | Checked | GB | 22/12/2021 | Point of Interest | 27 | Drawing Status | Draft |
| | | | Drawing No. | SK16B | <small>Notes:</small> 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | | | Revision |

Blade



A topographical survey should be completed through this section and the swept path assessment repeated to confirm the required mitigation.

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| | Client | Fehily Timoney | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg | |
| Key — Wheel SPA — Body SPA — Load SPA — Indicative Over-run Over-sail | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Checked | GB | 22/12/2021 | Drawing Status | Draft | |
| | SPA Location | N72 Coolclogh Bends | Point of Interest | 27 | | Drawing No. | SK17 | Notes: |
| | | | | | | | 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | 1 |



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| | Client | Fehily Timoney | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Drawn | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg |
| Key — Wheel SPA — Body SPA — Load SPA — Indicative Over-run Over-sail | SPA Location | N72 Coolclogh Bends | Checked | GB | 22/12/2021 | Drawing Status | Draft | | |
| | | | | Point of Interest | 27 | | Drawing No. | SK17A | Revision |
| | | | <small>Notes:</small> 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | | | | | |



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| | Client | Fehily Timoney | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg | |
| Key Wheel SPA Body SPA Load SPA Indicative Over-run Over-sail | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Checked | GB | 22/12/2021 | Drawing Status | Draft | |
| | SPA Location | N72 Coolclogh Bends | Point of Interest | 27 | | Drawing No. | SK17B | Notes: |
| | | | | | | | Revision | 1 |

Blade









A topographical survey should be completed through this section and the swept path assessment repeated to confirm the required mitigation.

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| | Client | Fehily Timoney | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg | | |
| Key Wheel SPA Body SPA Load SPA Indicative Over-run Over-sail | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Checked | GB | 22/12/2021 | Drawing Status | Draft | | |
| | SPA Location | N72 Dromagh | Point of Interest | 28 | | Drawing No. | SK18 | Notes: 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | Revision |



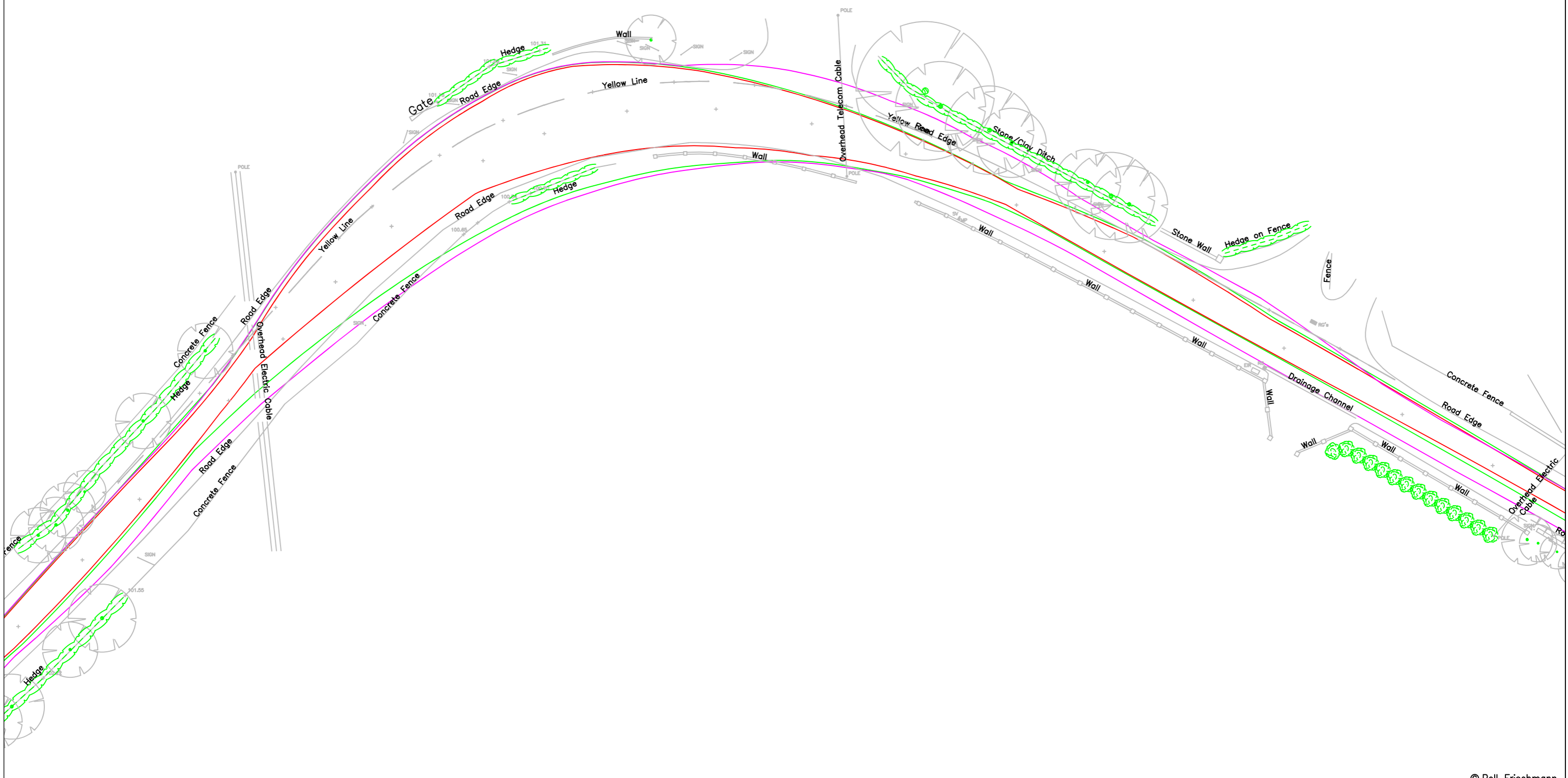
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| | Client | Fehily Timoney | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg |
| Key  Wheel SPA  Body SPA  Load SPA  Indicative  Over-run  Over-sail | SPA Location | N72 Dromagh | Checked | GB | 22/12/2021 | Point of Interest | 28 | Drawing Status | Draft |
| | | | | Drawing No. | SK18A | Notes: | 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | Revision |



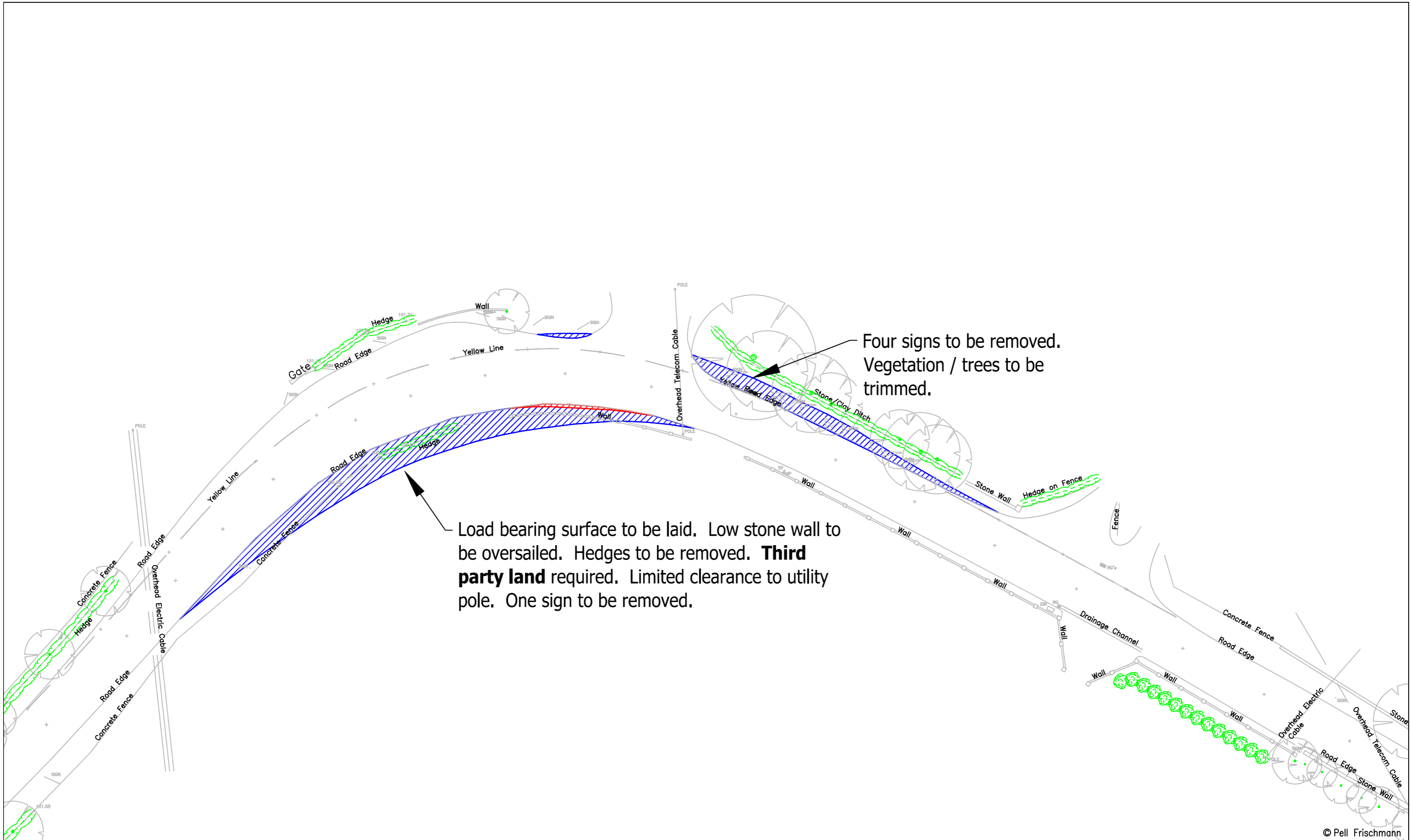
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| | Client | Fehily Timoney | Drawing Title | Siemens SGRE 6-155m and Mid Tower | | Designed | CN | 21/12/2021 | File No. |
| Key Wheel SPA Body SPA Load SPA Indicative Over-run Over-sail | SPA Location | N72 Dromagh | Checked | GB | 22/12/2021 | Point of Interest | 28 | Drawing Status | Draft |
| | | | Drawing No. | SK18B | | Notes: | 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | Revision |



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| | Client | Fehily Timoney | Drawn | CN | 21/12/2021 | Designed | GB | 22/12/2021 |
| Key Wheel SPA (Red line) Body SPA (Green line) Load SPA (Magenta line) Indicative (Cyan line) Over-run (Red hatched) Over-sail (Blue hatched) | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Checked | GB | 22/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg | |
| | SPA Location | N72 Dromtarriff Bend | Point of Interest | 29 | | Drawing Status | Draft | |
| | | | Drawing No. | SK19 | | Notes: | 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | |
| | | | | | | Revision | 1 | |



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| | Client | Fehily Timoney | Drawn | CN | 21/12/2021 | Designed | CN | 22/12/2021 |
| Key | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Checked | GB | 22/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg | |
| | SPA Location | N72 Dromtarriff Bend | Point of Interest | 29 | Drawing Status | Draft | Revision | 1 |
| | | | Drawing No. | SK19B | Notes: 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | | |

Blade



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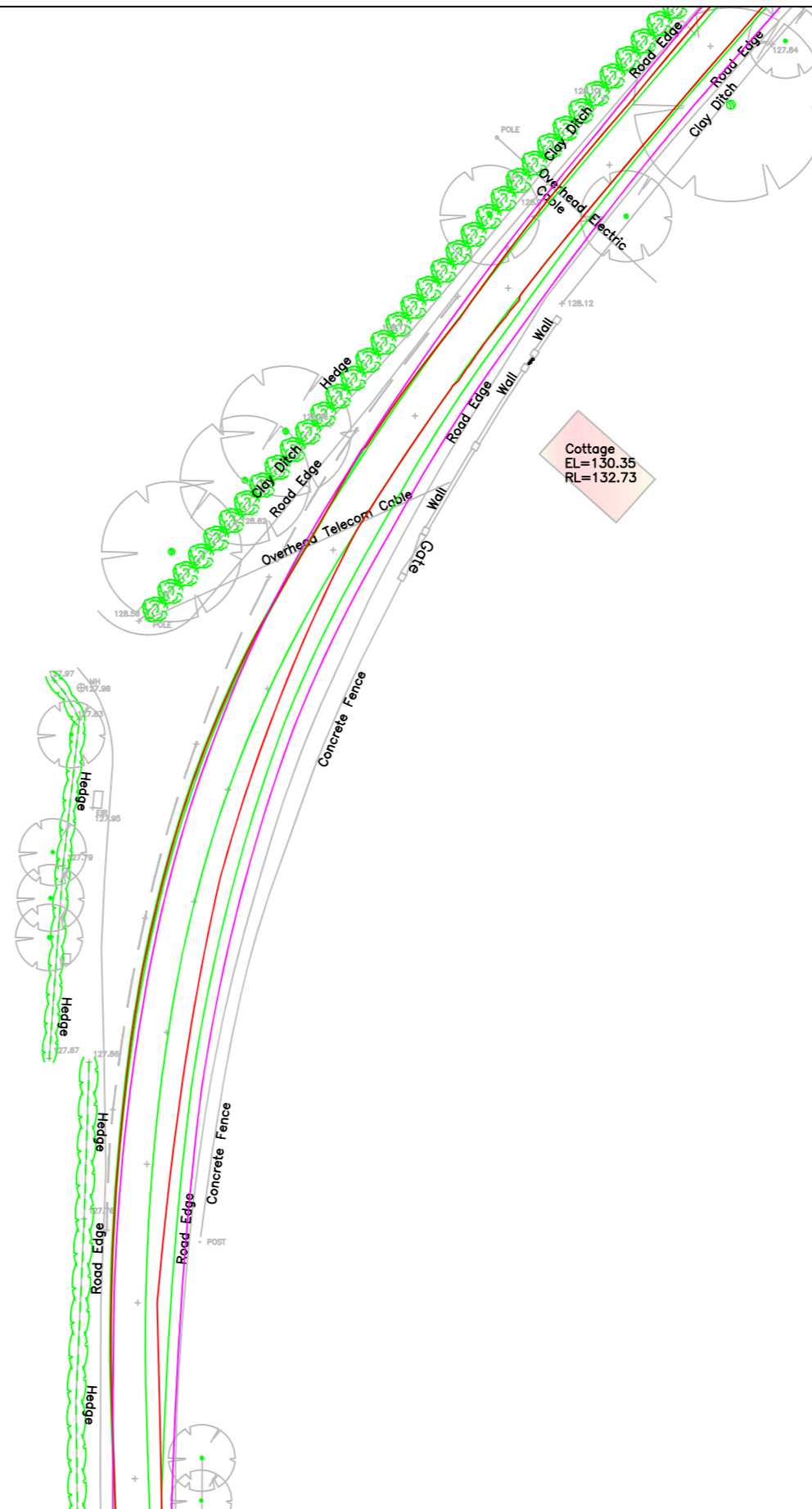
| | | | | | | | | | |
|--|--------------|-----------------------|---------------|-----------------------------------|------------|---|------------|----------------|--|
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| | Client | Fehily Timoney | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg |
| Key — Wheel SPA — Body SPA — Load SPA — Indicative Over-run Over-sail | SPA Location | N72 / R583 Junction | Checked | GB | 22/12/2021 | Point of Interest | 30 | Drawing Status | Draft |
| | | | Drawing No. | SK20 | Notes: | 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | | Revision |



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|--|--------------|-----------------------|---------------|-----------------------------------|------------|-------------------|---|----------------|----------|
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| | Client | Fehily Timoney | Drawing Title | Siemens SGRE 6-155m and Mid Tower | | Designed | CN | 21/12/2021 | File No. |
| Key — Wheel SPA — Body SPA — Load SPA — Indicative Over-run Over-sail | SPA Location | N72 / R583 Junction | Checked | GB | 22/12/2021 | Point of Interest | 30 | Drawing Status | Draft |
| | | | Drawing No. | SK20A | | Notes: | 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | Revision |

Tower



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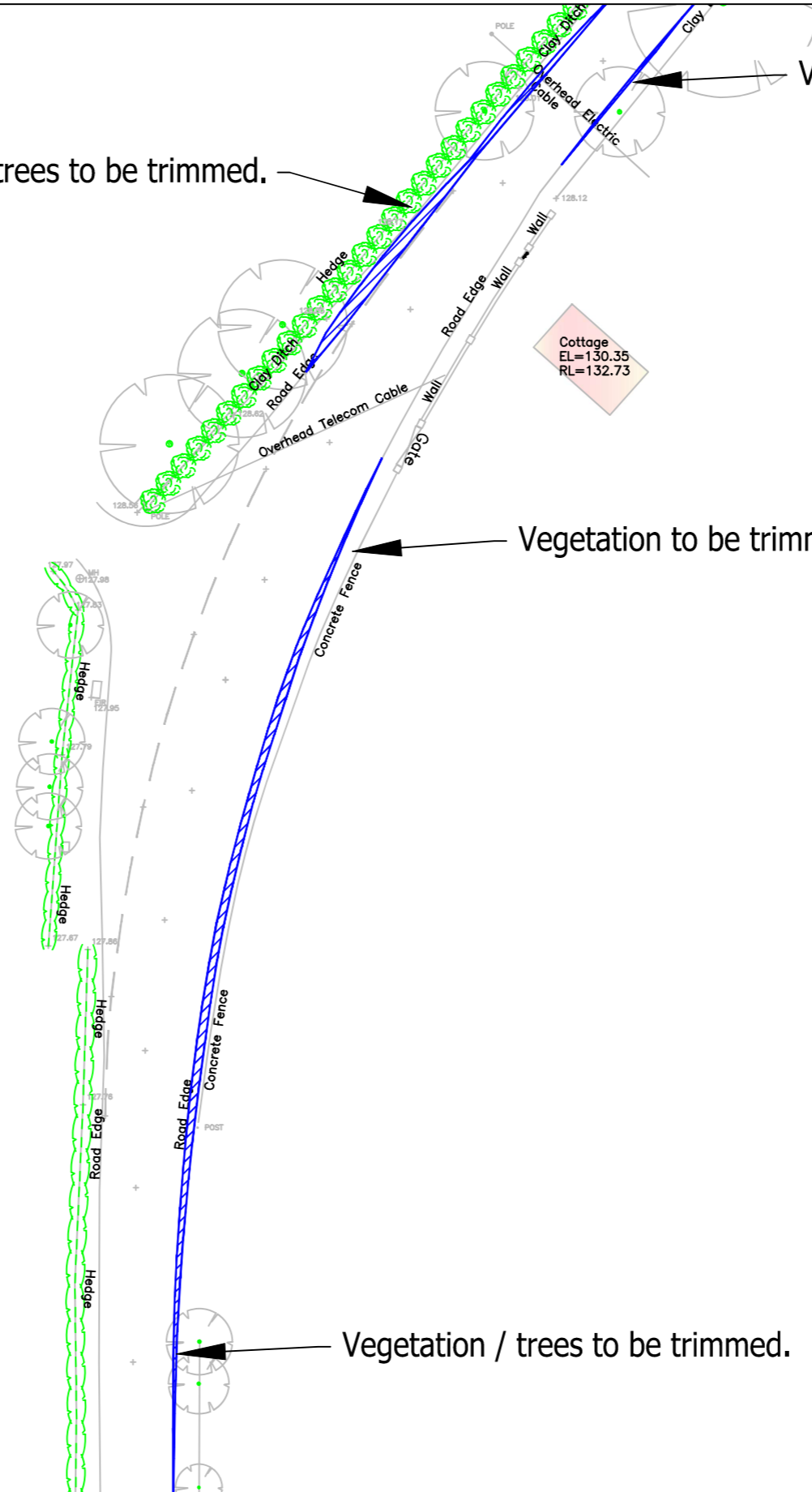
| | | | | | | | | | |
|--|--------------|-----------------------|---------------|-----------------------------------|------------|---|------------|----------------|--|
| Pell Frischmann 93 GEORGE STREET, EDINBURGH, EH2 3ES Tel: +44 (0)131 240 1270 Email: pfe@pellfrischmann.com www.pellfrischmann.com | Project | Ballinagree Wind Farm | Name | CN | Date | 22/12/2021 | Scale | 1:500 @ A3 | |
| | Client | Fehily Timoney | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg |
| Key Wheel SPA (Red line) Body SPA (Green line) Load SPA (Magenta line) Indicative (Cyan line) Over-run (Red hatched box) Over-sail (Blue hatched box) | SPA Location | R583 Killetragh | Checked | GB | 22/12/2021 | Point of Interest | 31 | Drawing Status | Draft |
| | | | Drawing No. | SK21A | Notes: | 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | | Revision |

Vegetation / trees to be trimmed.

Vegetation / trees to be trimmed.

Vegetation to be trimmed.

Vegetation / trees to be trimmed.



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|---|---------------|-----------------------------------|-------------------|-------|------------|----------------|---|------------|
| Pell Frischmann 93 GEORGE STREET, EDINBURGH, EH2 3ES Tel: +44 (0)131 240 1270 Email: pfe@pellfrischmann.com www.pellfrischmann.com | Project | Ballinagree Wind Farm | Name | CN | Date | 22/12/2021 | Scale | 1:500 @ A3 |
| | Client | Fehily Timoney | Designated | CN | 21/12/2021 | Checked | GB | 22/12/2021 |
| Key | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Point of Interest | 31 | | Drawing Status | Draft | |
| | SPA Location | R583 Killetragh | Drawing No. | SK21B | | Notes: | 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilized, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilizing a topographical survey. | |
| | | | Revision | 1 | | | | |

Blade



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| | Client | Fehily Timoney | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg |
| Key — Wheel SPA — Body SPA — Load SPA — Indicative Over-run Over-sail | SPA Location | R583 Minehill | Checked | GB | 22/12/2021 | Drawing Status | Draft | Revision | 1 |
| | | | Point of Interest | 32 | Drawing No. | SK22 | <small>Notes:</small> 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | |

Tower



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|--|--------------|-----------------------|---------------|-----------------------------------|------------|-------------------|---|----------------|--|
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| | Client | Fehily Timoney | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg |
| Key — Wheel SPA — Body SPA — Load SPA — Indicative Over-run Over-sail | SPA Location | R583 Minehill | Checked | GB | 22/12/2021 | Point of Interest | 32 | Drawing Status | Draft |
| | | | | Drawing No. | SK22A | Notes: | 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | Revision | 1 |



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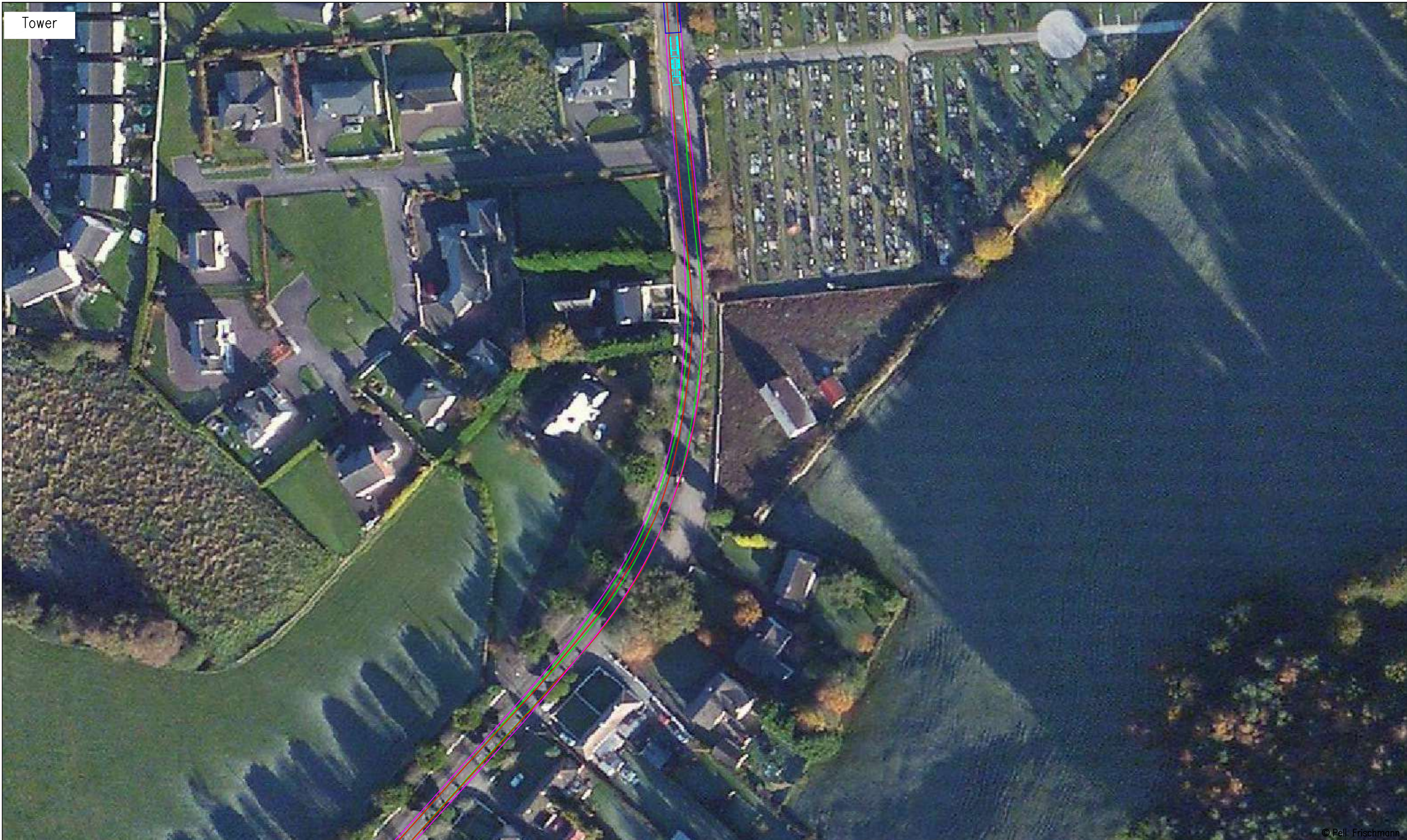
| | | | | | | | | | |
|---|---|-----------------------|-----------------------------------|--|------------|----------------|--|------------|----------|
| Pell Frischmann <small>93 GEORGE STREET, EDINBURGH, EH2 3ES</small> <small>Tel: +44 (0)131 240 1270</small> <small>Email: pfe@pellfrischmann.com</small> <small>www.pellfrischmann.com</small> | Project | Ballinagree Wind Farm | Name | CN | Date | 22/12/2021 | Scale | 1:500 @ A3 | |
| | Client | Drawing Title | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg | | |
| | | | Checked | GB | 22/12/2021 | Drawing Status | Draft | | |
| Client | Fehily Timoney | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Point of Interest | 32 | | Drawing No. | SK22B | Revision |
| Key | — Wheel SPA — Body SPA — Load SPA — Indicative Over-run Over-sail | SPA Location | R583 Minehill | <small>Notes:</small> 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | | | | 1 |

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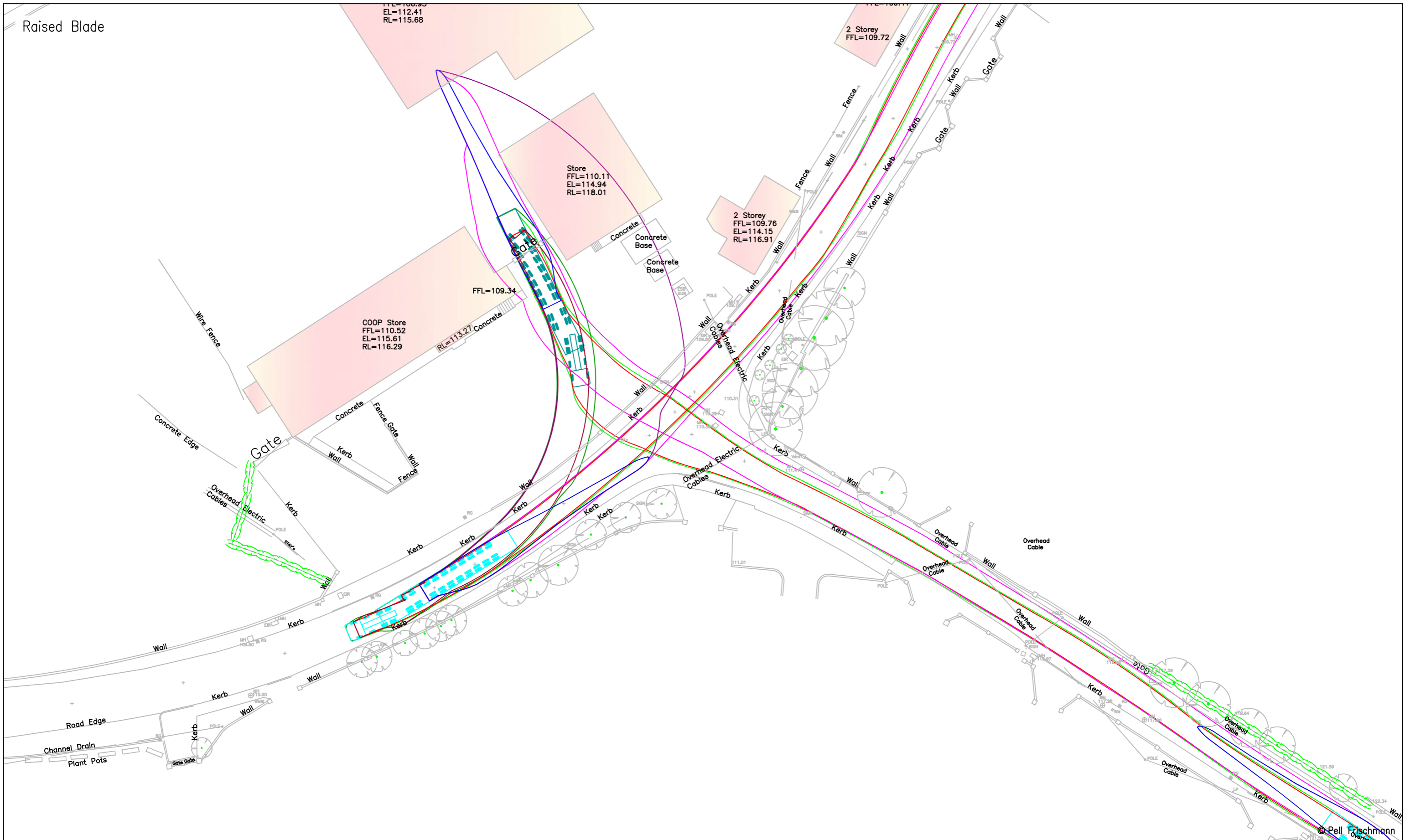
| | | | | | | | | |
|---|---------------|--|-------------------|------|---|------------|--|-------------|
| Pell Frischmann 93 GEORGE STREET, EDINBURGH, EH2 3ES Tel: +44 (0)131 240 1270 Email: pfe@pellfrischmann.com www.pellfrischmann.com | Project | Ballinagree Wind Farm | Name | CN | Date | 22/12/2021 | Scale | 1:1000 @ A3 |
| | Client | Fehily Timoney | Drawn | CN | 21/12/2021 | Designed | CN | 21/12/2021 |
| Key Wheel SPA Body SPA Load SPA Indicative Over-run Over-sail | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Checked | GB | 22/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg | |
| | SPA Location | R583 Drishane Road Entering Millstreet | Point of Interest | 37 | Drawing Status | Draft | Revision | 1 |
| | | | Drawing No. | SK23 | Notes: 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | | |



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| | Client | Fehily Timoney | Drawn | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg | | | |
| Key Wheel SPA Body SPA Load SPA Indicative Over-run Over-sail | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Designed | GB | 22/12/2021 | Checked | GB | 22/12/2021 | Drawing Status | Draft |
| | SPA Location | R583 Drishane Road Entering Millstreet | Point of Interest | 37 | | Drawing No. | SK23A | Notes: | 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | Revision |

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Client **Fehily Timoney**

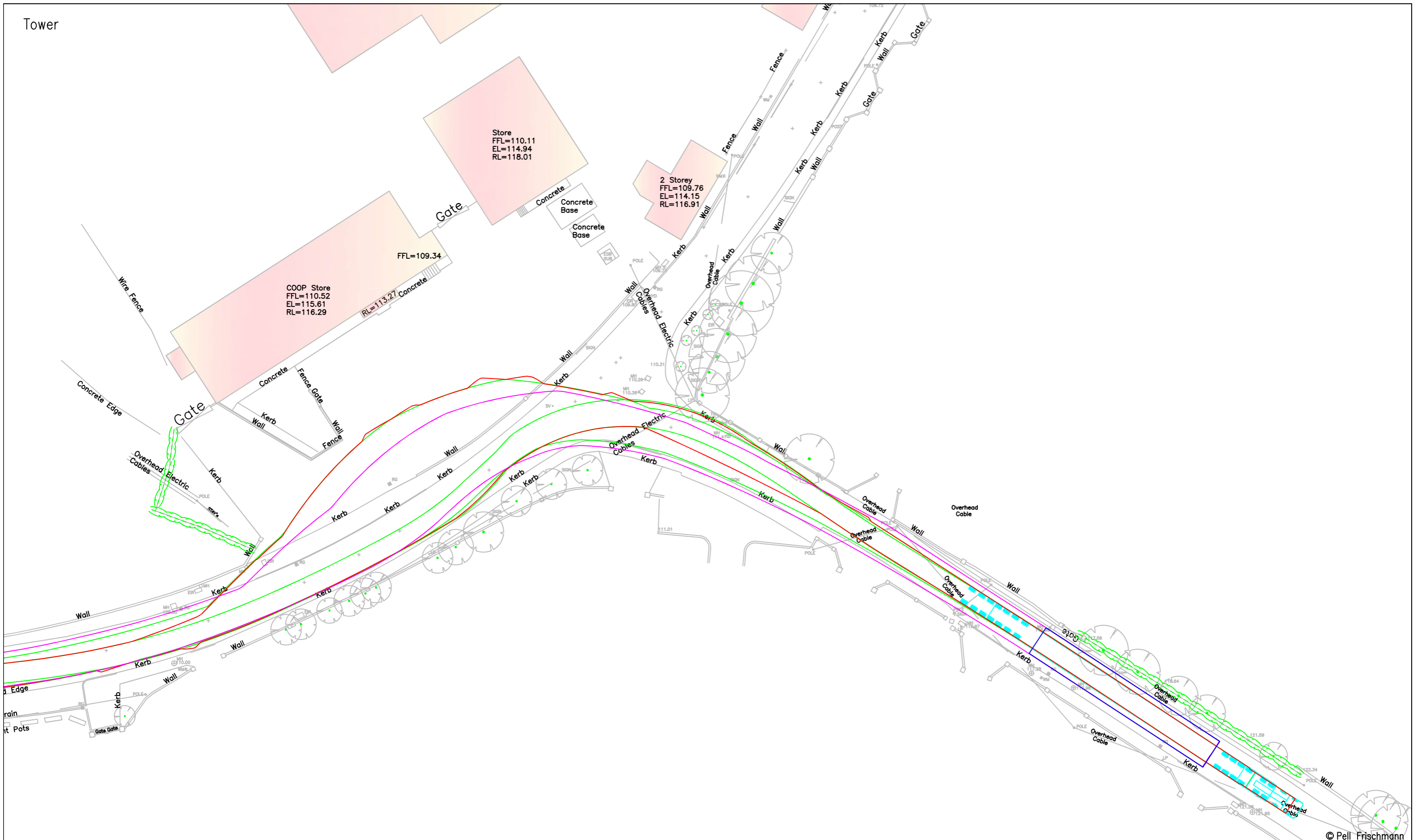
| | | | | | | |
|-----|----------------------------------|------------------------------------|--------------------------------------|-----------------------------------|--|--|
| Key | — | — | — | — | | |
| | Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail |

Project
Ballinagree Wind Farm

Drawing Title
Siemens SGRE 6-155m and Mid Tower

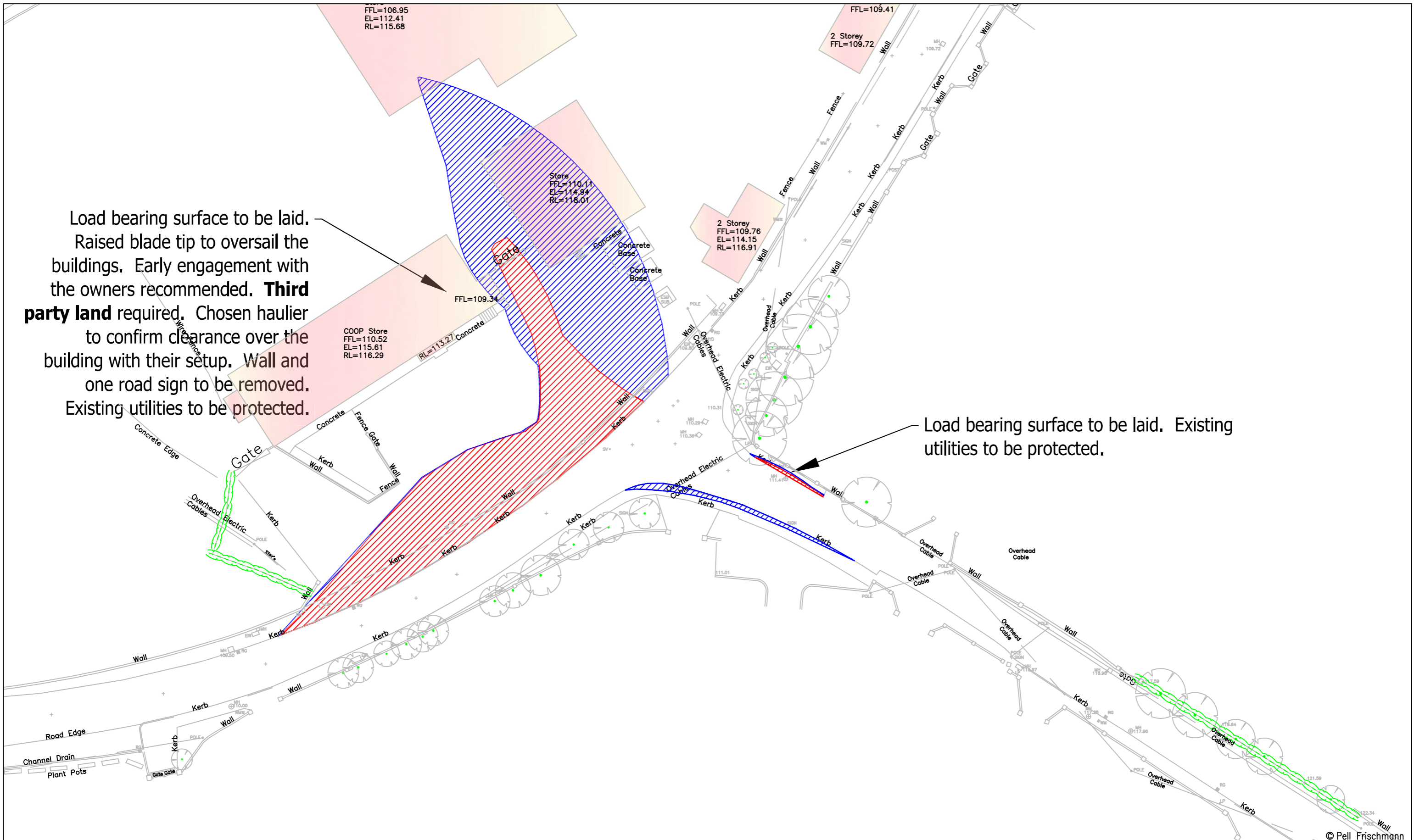
SPA Location
R583 / L1123 Junction

| | | | | |
|--|----|------------|----------------|--|
| Drawn | CN | 22/12/2021 | Scale | 1:500 @ A3 |
| Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg |
| Checked | GB | 22/12/2021 | Drawing Status | Draft |
| Point of Interest | 38 | | Drawing No. | SK25 |
| Notes: | | | | Revision |
| 1. A test run should be carried out to confirm swept path analyses prior to construction. | | | | 1 |
| 2. Not for construction. | | | | |
| 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | | | |



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| | Client | Fehily Timoney | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg | |
| Key | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Checked | GB | 22/12/2021 | Drawing Status | Draft | |
| | SPA Location | R583 / L1123 Junction | Point of Interest | 38 | | Drawing No. | SK25A | Revision |
| | | | Notes: 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | | | | |



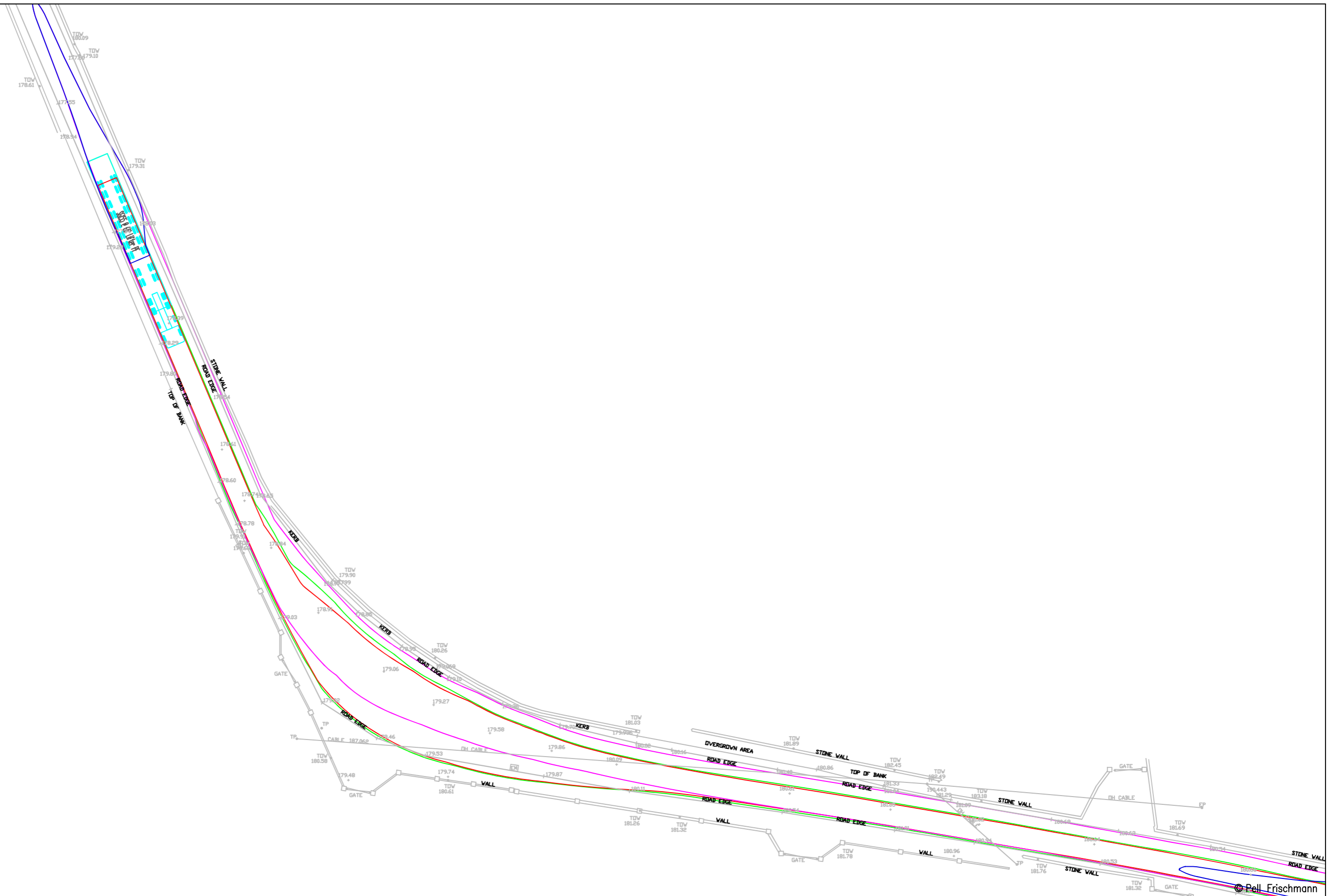
Load bearing surface to be laid. Raised blade tip to oversail the buildings. Early engagement with the owners recommended. **Third party land** required. Chosen haulier to confirm clearance over the building with their setup. Wall and one road sign to be removed. Existing utilities to be protected.

Load bearing surface to be laid. Existing utilities to be protected.

| | | | | | | | | |
|--|---------------|-----------------------------------|-------------------|----|------------|----------------|--|-------------|
| Pell Frischmann 93 GEORGE STREET, EDINBURGH, EH2 3ES Tel: +44 (0) 131 240 1270 Email: pfe@pellfrischmann.com www.pellfrischmann.com | Project | Ballinagree Wind Farm | Name | CN | Date | 22/12/2021 | Scale | Custom @ A3 |
| | Client | Fehily Timoney | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg | |
| Key Wheel SPA Body SPA Load SPA Indicative Over-run Over-sail | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Checked | GB | 22/12/2021 | Drawing Status | Draft | |
| | SPA Location | R583 / L1123 Junction - Option 1 | Point of Interest | 38 | | Drawing No. | SK25B | |
| | Notes: | | | | | | Revision | 1 |

Notes:
 1. A test run should be carried out to confirm swept path analyses prior to construction.
 2. Not for construction.
 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey.

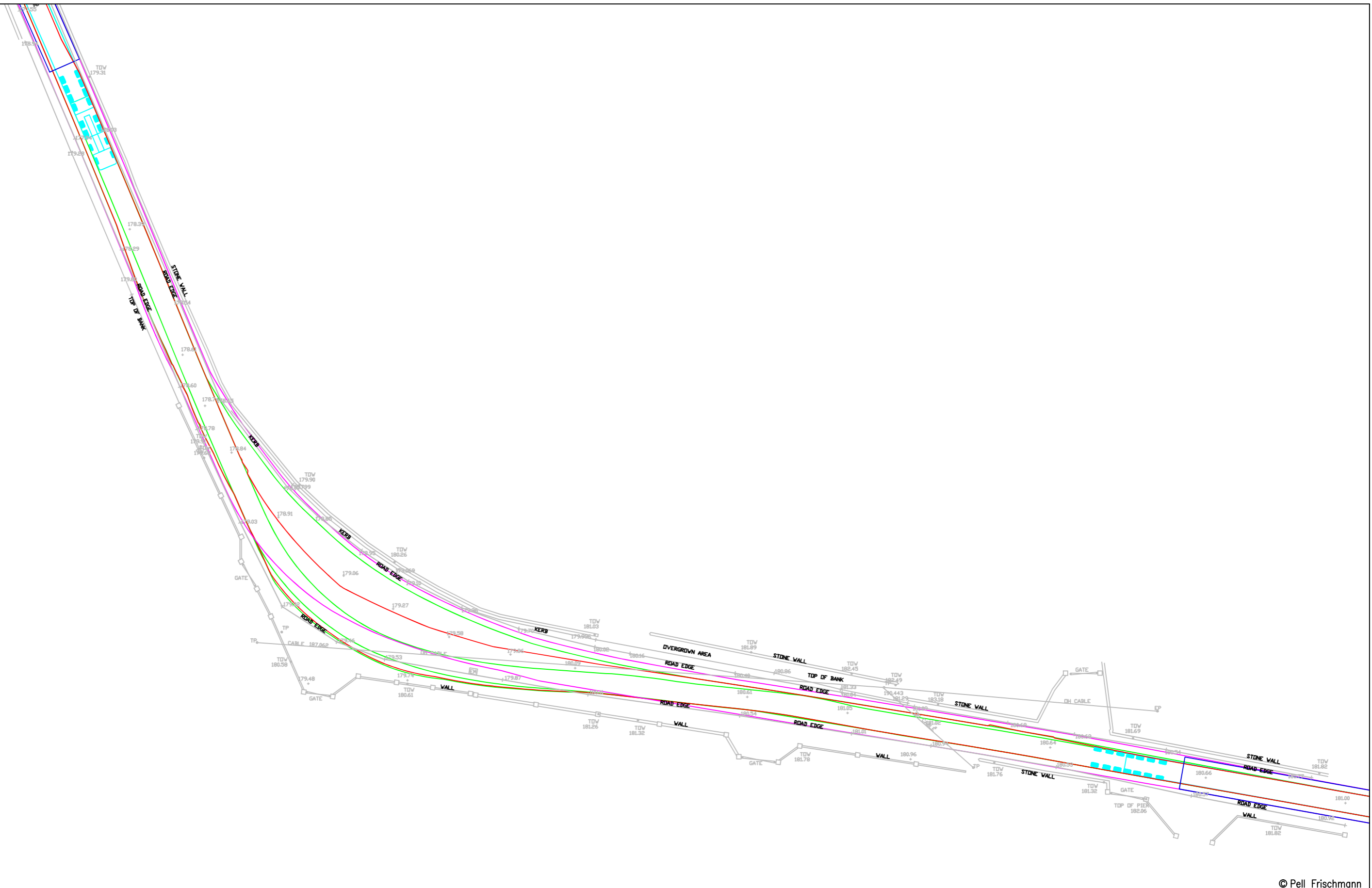
Raised Blade



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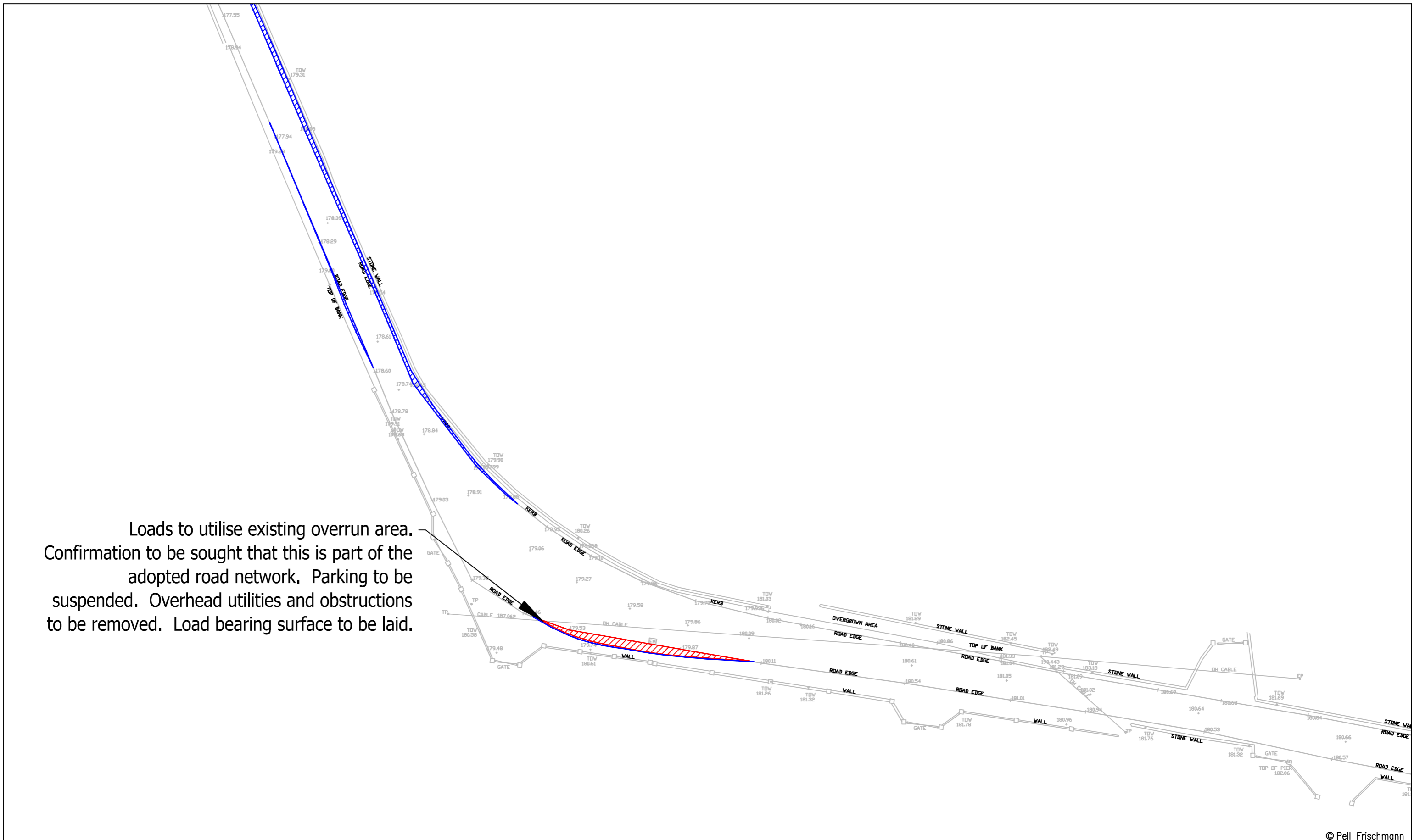
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|--|---------------|-----------------------------------|-------------------|----|------------|----------------|---|-------------|
| Pell Frischmann 93 GEORGE STREET, EDINBURGH, EH2 3ES Tel: +44 (0)131 240 1270 Email: pfeinburgh@pellfrischmann.com www.pellfrischmann.com | Project | Ballinagree Wind Farm | Name | CN | Date | 22/12/2021 | Scale | Custom @ A3 |
| | Client | Fehily Timoney | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg | |
| Key Wheel SPA Body SPA Load SPA Indicative Over-run Over-sail | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Checked | GB | 22/12/2021 | Drawing Status | Draft | |
| | SPA Location | Tulig Road Left Bend | Point of Interest | 40 | | Drawing No. | SK27 | Notes: |
| | | | | | | | 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | 1 |

Tower



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| Pell Frischmann 93 GEORGE STREET, EDINBURGH, EH2 3ES Tel: +44 (0)131 240 1270 Email: pfe@pellfrischmann.com www.pellfrischmann.com | Project | Ballinagree Wind Farm | Name | CN | Date | 22/12/2021 | Scale | Custom @ A3 | |
| | Client | Fehily Timoney | Drawn | CN | 21/12/2021 | Designed | CN | 22/12/2021 | File No |
| Key Wheel SPA Body SPA Load SPA Indicative Over-run Over-sail | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Checked | GB | 22/12/2021 | Point of Interest | 40 | Drawing Status | Draft |
| | SPA Location | Tulig Road Left Bend | Drawing No. | SK27A | Notes: | 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | Revision | 1 | |



Loads to utilise existing overrun area.
 Confirmation to be sought that this is part of the adopted road network. Parking to be suspended. Overhead utilities and obstructions to be removed. Load bearing surface to be laid.

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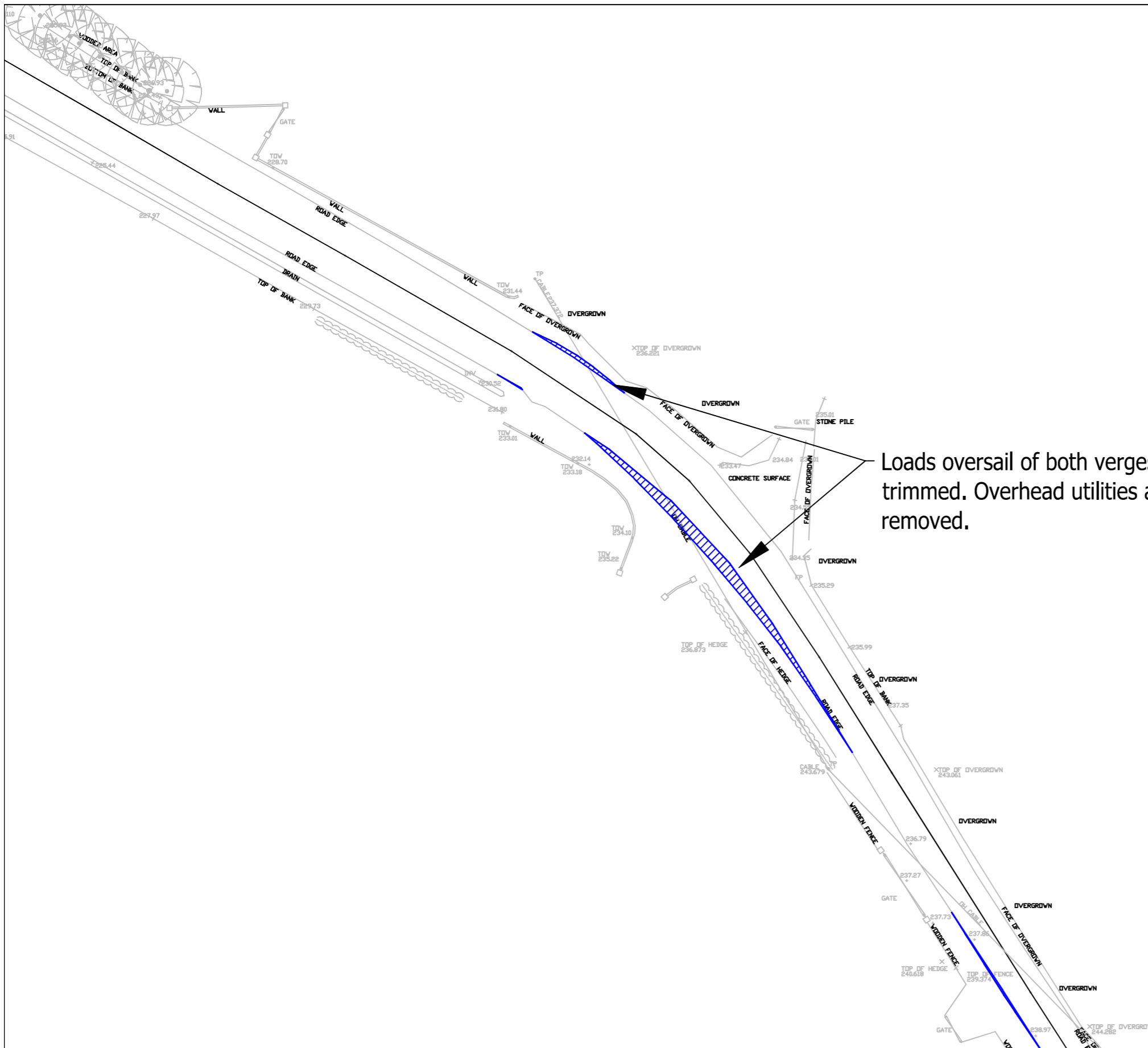
| | | | | | | | | |
|---|---------------|-----------------------------------|--|----|------------|----------------|--|-------------|
| Pell Frischmann <small>93 GEORGE STREET, EDINBURGH, EH2 3ES</small> <small>Tel: +44 (0)131 240 1270</small> <small>Email: pfe@pellfrischmann.com</small> <small>www.pellfrischmann.com</small> | Project | Ballinagree Wind Farm | Name | CN | Date | 22/12/2021 | Scale | Custom @ A3 |
| | Client | Fehily Timoney | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg | |
| Key Wheel SPA Body SPA Load SPA Indicative Over-run Over-sail | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Checked | GB | 22/12/2021 | Drawing Status | Draft | |
| | SPA Location | Tulig Road Left Bend | Point of Interest | 40 | | Drawing No. | SK27B | Revision |
| | | | <small>Notes:</small> 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | | | | |

Tower



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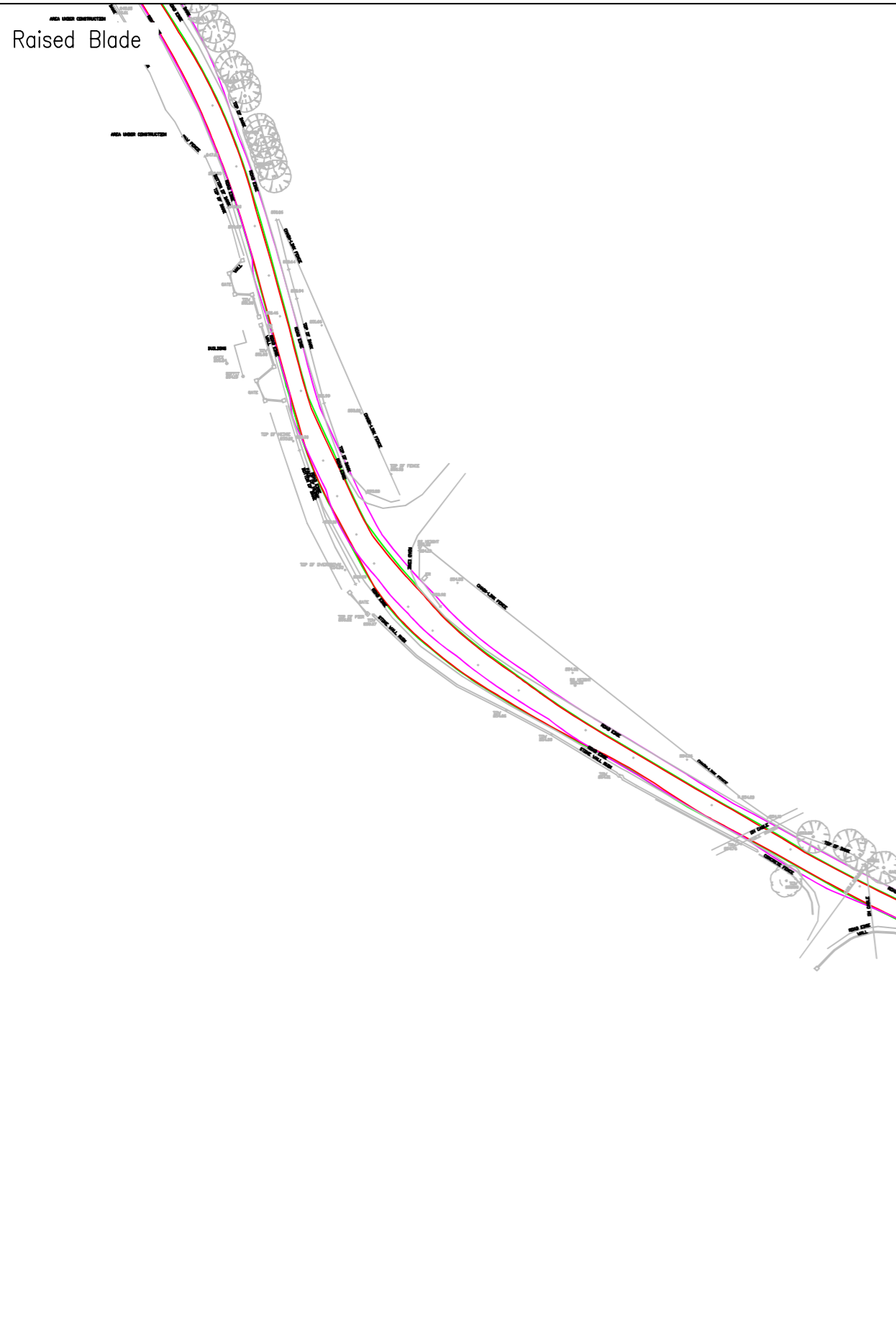
| | | | | | | | | | |
|---|---------------|-----------------------------------|-------------|-------|------------|---|----------|----------------|----------|
| Pell Frischmann 93 GEORGE STREET, EDINBURGH, EH2 3ES Tel: +44 (0)131 240 1270 Email: pfe@pellfrischmann.com www.pellfrischmann.com | Project | Ballinagree Wind Farm | Name | CN | Date | 22/12/2021 | Scale | 1:500 @ A3 | |
| | Client | Fehily Timoney | Drawn | CN | 21/12/2021 | Designed | CN | 22/12/2021 | File No. |
| Key | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Checked | GB | 22/12/2021 | Point of Interest | 41 | Drawing Status | Draft |
| | SPA Location | Tulig Road Left Bend | Drawing No. | SK28A | Notes: | 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | Revision | 1 | |



Loads oversail of both verges, vegetation to be trimmed. Overhead utilities and obstructions to be removed.

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| | Client | Fehily Timoney | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg | |
| Key | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Checked | GB | 22/12/2021 | Drawing Status | Draft | |
| | SPA Location | Tulig Road Left Bend | Point of Interest | 41 | | Drawing No. | SK28B | Revision |
| Notes: 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | | | | | | | |



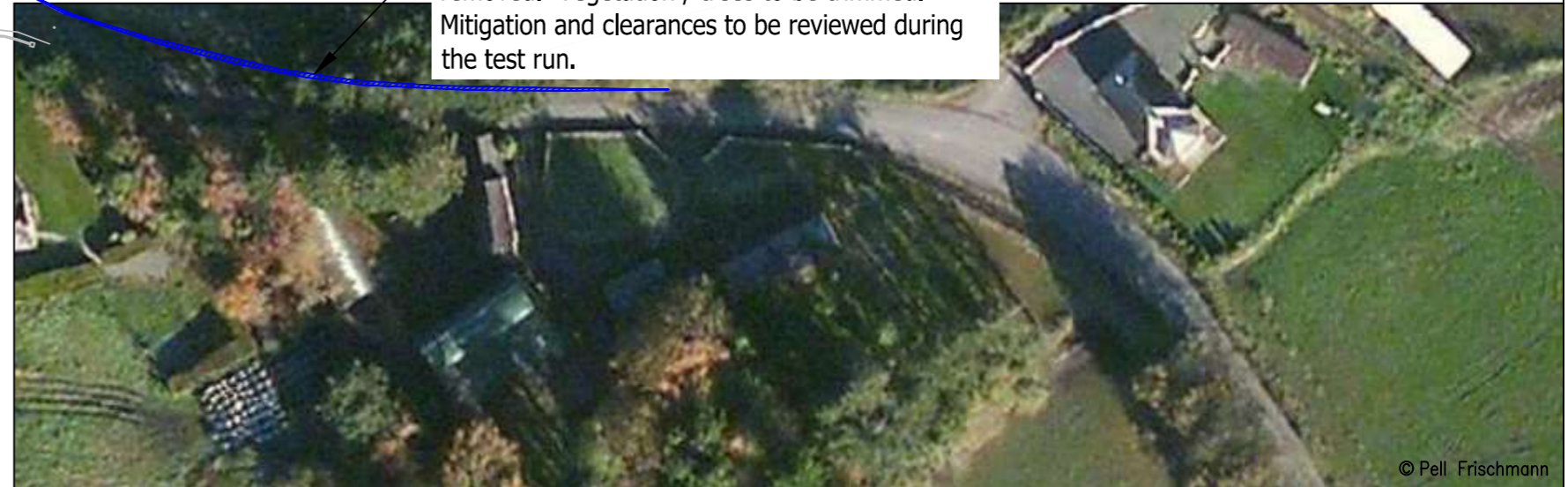
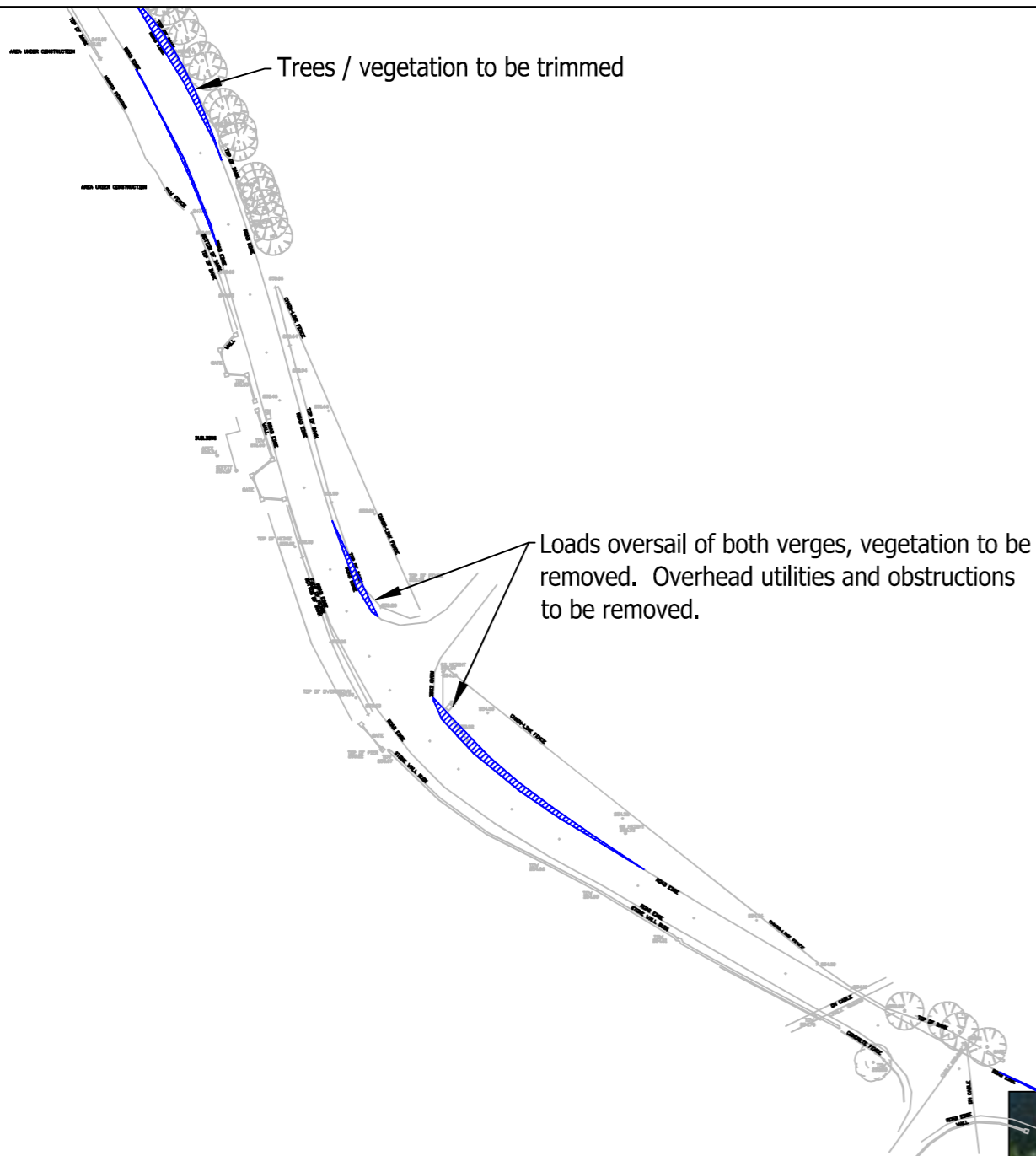
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| | Client | Fehily Timoney | | | Drawn | CN | 22/12/2021 | |
| Key Wheel SPA Body SPA Load SPA Indicative Over-run Over-sail | Drawing Title | Siemens SGRE 6-155m and Mid Tower | | | Designed | CN | 21/12/2021 | |
| | SPA Location | Tulig Road Right Bend | | | Checked | GB | 22/12/2021 | |
| | | Point of Interest | 42 | | File No. | | Báilínáree Tracking ITM v6 211221.dwg | |
| | | Drawing No. | SK29 | | Drawing Status | | Draft | |
| | | Notes: 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | | | | Revision | 1 |



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| | Client | Fehily Timoney | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg |
| Key Wheel SPA (Red line) Body SPA (Green line) Load SPA (Magenta line) Indicative (Cyan line) Over-run (Red hatched) Over-sail (Blue hatched) | SPA Location | Tulig Road Left Bend | Checked | GB | 22/12/2021 | Point of Interest | 42 | Drawing Status | Draft |
| | | | Drawing No. | SK29A | Notes: | 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | | Revision |



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|---|---------------|-----------------------------------|--|-------------------|----|------|-------------|---|--|----------|
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| | Client | Fehily Timoney | | Designed | CN | Date | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg | |
| Key — Wheel SPA — Body SPA — Load SPA — Indicative Over-run Over-sail | Drawing Title | Siemens SGRE 6-155m and Mid Tower | | Checked | GB | Date | 22/12/2021 | Drawing Status | Draft | |
| | SPA Location | Tulig Road Left Bend | | Point of Interest | 42 | | Drawing No. | SK29B | Notes: | Revision |
| | | | | | | | | 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | 1 | |

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|--|---------------|-----------------------------------|--|----|------------|----------------|--|------------|
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| | Client | Fehily Timoney | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg | |
| Key — Wheel SPA — Body SPA — Load SPA — Indicative Over-run Over-sail | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Checked | GB | 22/12/2021 | Drawing Status | Draft | |
| | SPA Location | Tulig Road Right Bend | Point of Interest | 42 | | Drawing No. | SK30 | Notes: |
| | | | <small>1. A test run should be carried out to confirm swept path analyses prior to construction.</small> <small>2. Not for construction.</small> <small>3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey.</small> | | | | | 1 |

Tower



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| | Client | Fehily Timoney | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg |
| Key — Wheel SPA — Body SPA — Load SPA — Indicative Over-run Over-sail | SPA Location | Tulig Road Left Bend | Checked | GB | 22/12/2021 | Point of Interest | 42 | Drawing Status | Draft |
| | | | Drawing No. | SK30A | <small>Notes:</small> 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | | | Revision |

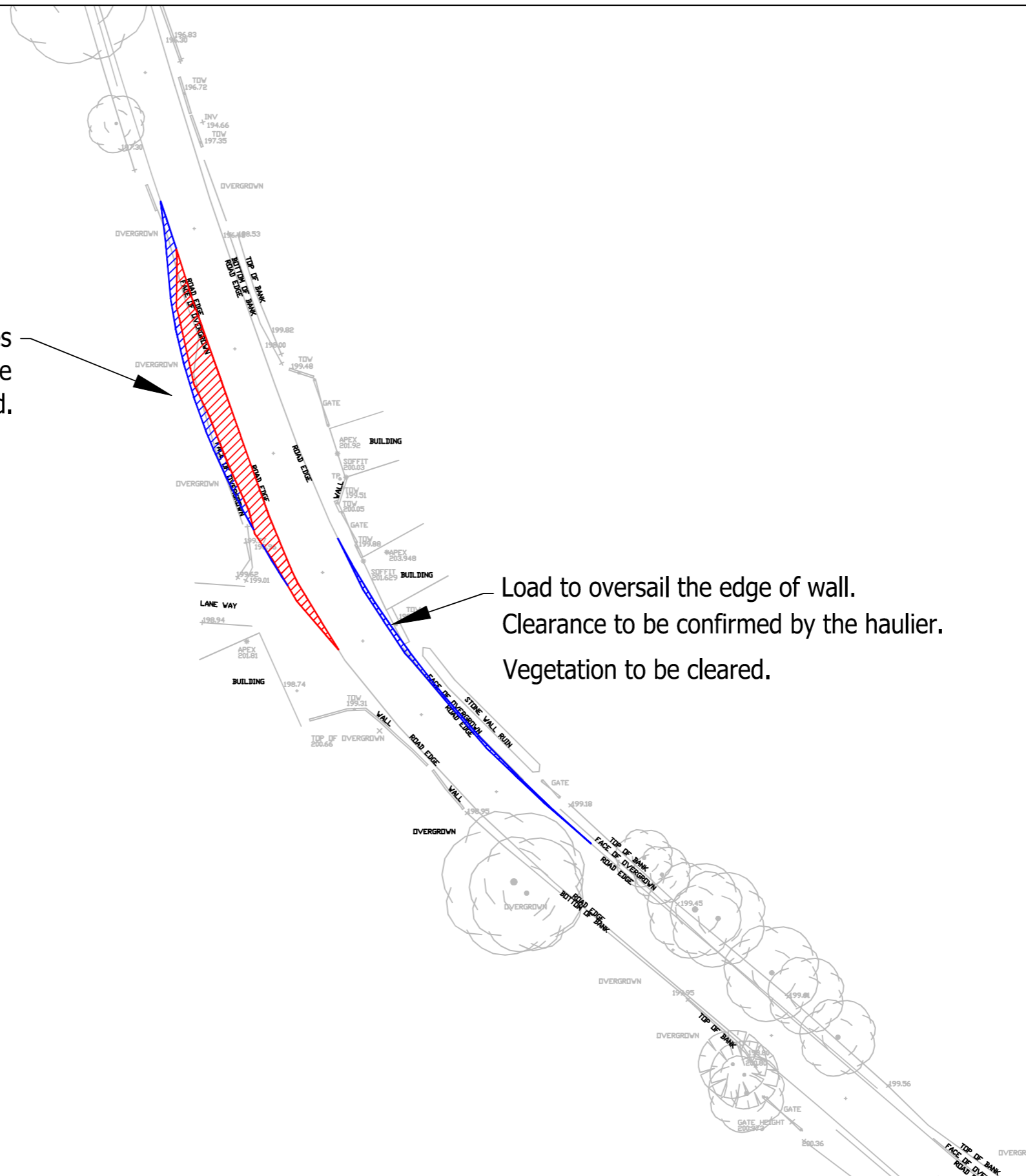


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| | Client | Fehily Timoney | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg | |
| Key — Wheel SPA — Body SPA — Load SPA — Indicative Over-run Over-sail | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Checked | GB | 22/12/2021 | Drawing Status | Draft | |
| | SPA Location | Tulig Road Left Bend | Point of Interest | 42 | | Drawing No. | SK30B | Revision |
| <small>Notes:</small> 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | | | | | | | |

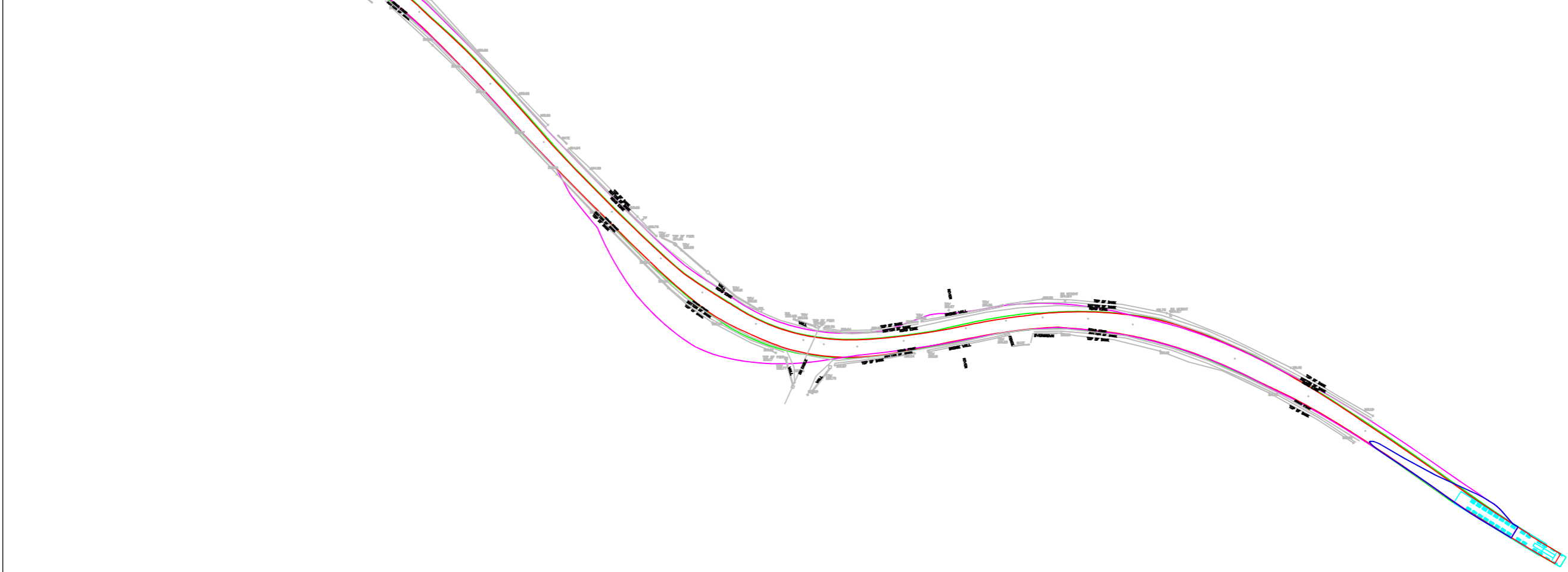
Load bearing surface to be laid. Overhead utilities and obstructions to be removed. Vegetation to be cleared. Potential **Third party land** required.

Load to oversail the edge of wall. Clearance to be confirmed by the haulier. Vegetation to be cleared.



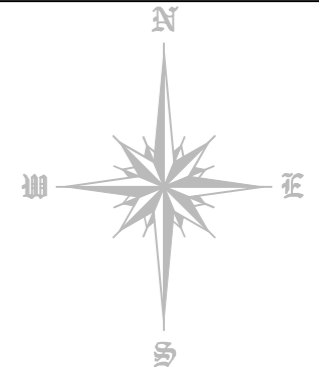
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| | Client | Fehily Timoney | Drawn | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg | |
| Key | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Checked | GB | 22/12/2021 | Drawing Status | Draft | |
| | SPA Location | River Owenbawn Left Bend | Point of Interest | 43 | | Drawing No. | SK31B | Revision |
| Notes: 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | | | | | | | |



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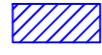
| | | | | | | | | |
|--|---------------|-----------------------------------|---|----|------------|----------------|--|----------|
| Pell Frischmann 93 GEORGE STREET, EDINBURGH, EH2 3ES Tel: +44 (0)131 240 1270 Email: pfeinburgh@pellfrischmann.com www.pellfrischmann.com | Project | Ballinagree Wind Farm | Drawn | CN | 22/12/2021 | Scale | 1:1000 @ A3 | |
| | Client | Fehily Timoney | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg | |
| Key Wheel SPA Body SPA Load SPA Indicative Over-run Over-sail | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Checked | GB | 22/12/2021 | Drawing Status | Draft | |
| | SPA Location | Aubane West of Tullig | Point of Interest | 44 | | Drawing No. | SK32 | Revision |
| | | | Notes: 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | | | | |



Load bearing surface to be laid. **Third party land** required. Land to be reprofiled and hedge to be removed. Overhead utilities to be removed. Section of all to be removed.

Third party land required. Bridge parapet to be oversailed.

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| | Client | Fehily Timoney | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg | | |
| Key  Wheel SPA  Body SPA  Load SPA  Indicative  Over-run  Over-sail | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Checked | GB | 22/12/2021 | Drawing Status | Draft | | |
| | SPA Location | Aubane West of Tullig | Point of Interest | 44 | | Drawing No. | SK32B | Notes: | 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. |
| | | | | | | | Revision | 2 | |

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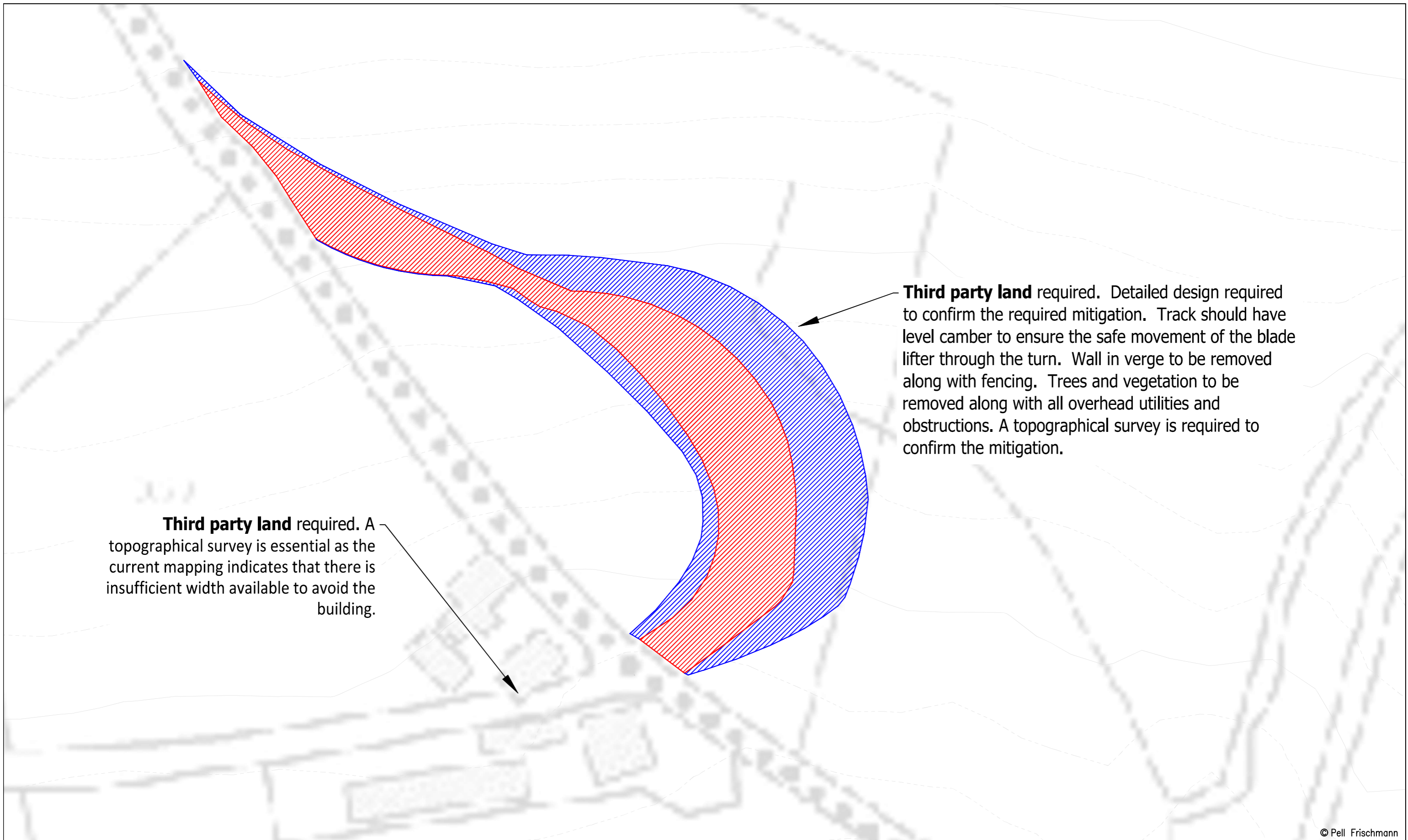
| | | | | | | | | | |
|---|--------------|-------------------------|---------------|-----------------------------------|------------|-------------------|---|----------------|----------|
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| | Client | Fehily Timoney | Drawing Title | Siemens SGRE 6-155m and Mid Tower | | Designed | CN | 21/12/2021 | File No. |
| Key — Wheel SPA — Body SPA — Load SPA — Indicative Over-run Over-sail | SPA Location | Right turn at Farm Yard | Checked | GB | 22/12/2021 | Point of Interest | 46 | Drawing Status | Draft |
| | | | Drawing No. | SK33 | | Notes: | 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | Revision |

Tower



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| | Client | Fehily Timoney | Drawing Title | Siemens SGRE 6-155m and Mid Tower | | Designed | CN | 21/12/2021 | File No. |
| Key — Wheel SPA — Body SPA — Load SPA — Indicative Over-run Over-sail | SPA Location | Right turn at Farm Yard | Checked | GB | 22/12/2021 | Point of Interest | 46 | Drawing Status | Draft |
| | | | | Drawing No. | SK33A | Notes: | 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | Revision |



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| | Client | Fehily Timoney | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg | |
| Key — Wheel SPA — Body SPA — Load SPA — Indicative Over-run Over-sail | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Checked | GB | 22/12/2021 | Drawing Status | Draft | |
| | SPA Location | Right turn at Farm Yard | Point of Interest | 46 | | Drawing No. | SK33B | Revision |
| <small>Notes:</small> 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | | | | | | | |

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2.73

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Project

Ballinagree Wind Farm

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|-------------------|------|------------|----------------|--|
| Drawn | CN | 22/12/2021 | Scale | 1:750 @ A3 |
| Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg |
| Checked | GB | 22/12/2021 | Drawing Status | Draft |
| Point of Interest | | 47 | Revision | |
| Drawing No. | SK34 | Notes: | | 1 |

Client

Fehily Timoney

Drawing Title

Siemens SGRE 6-155m and Mid Tower

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

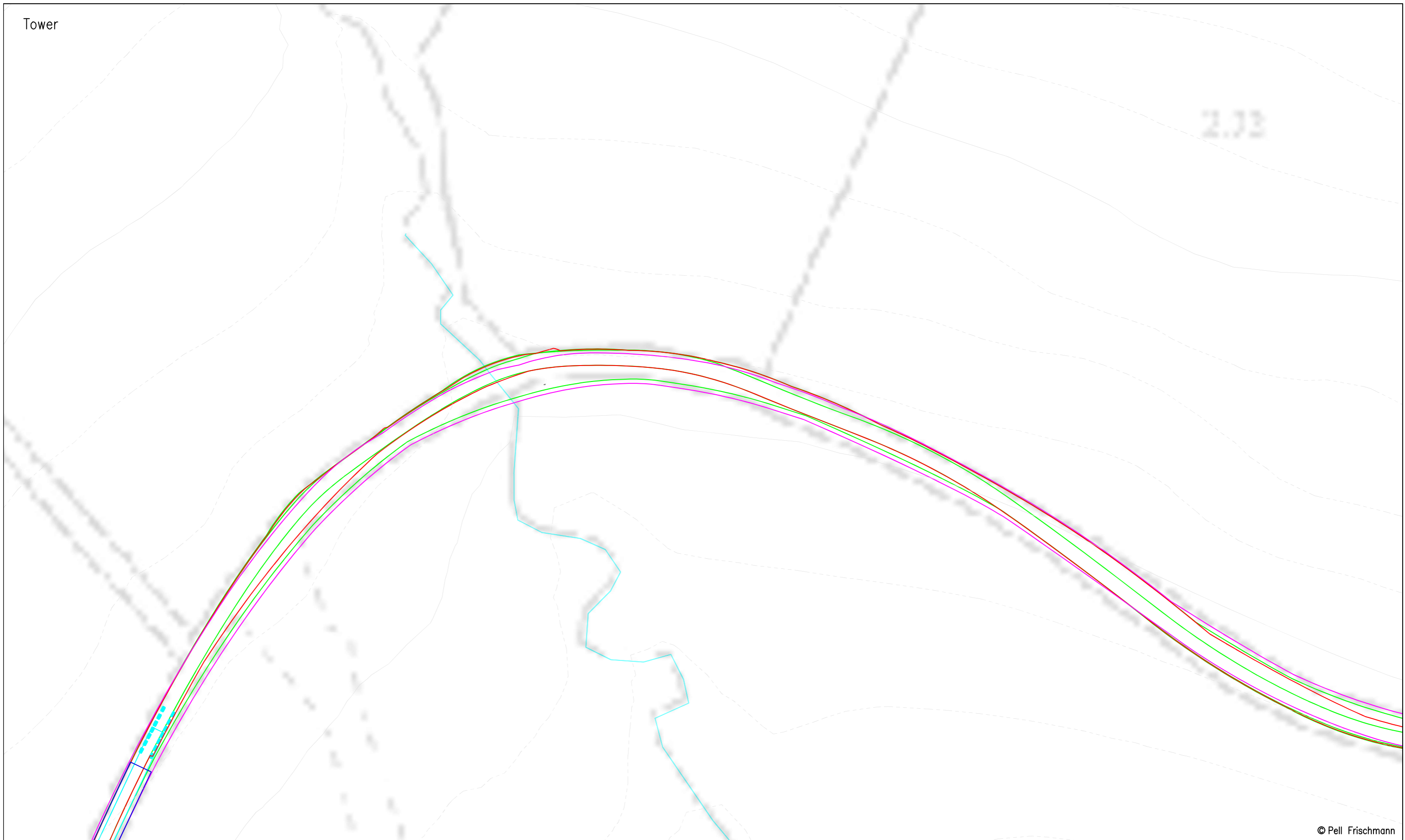
SPA Location

Left Bend over Bridge

Notes:
 1. A test run should be carried out to confirm swept path analyses prior to construction.
 2. Not for construction.
 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey.

Tower

2.73

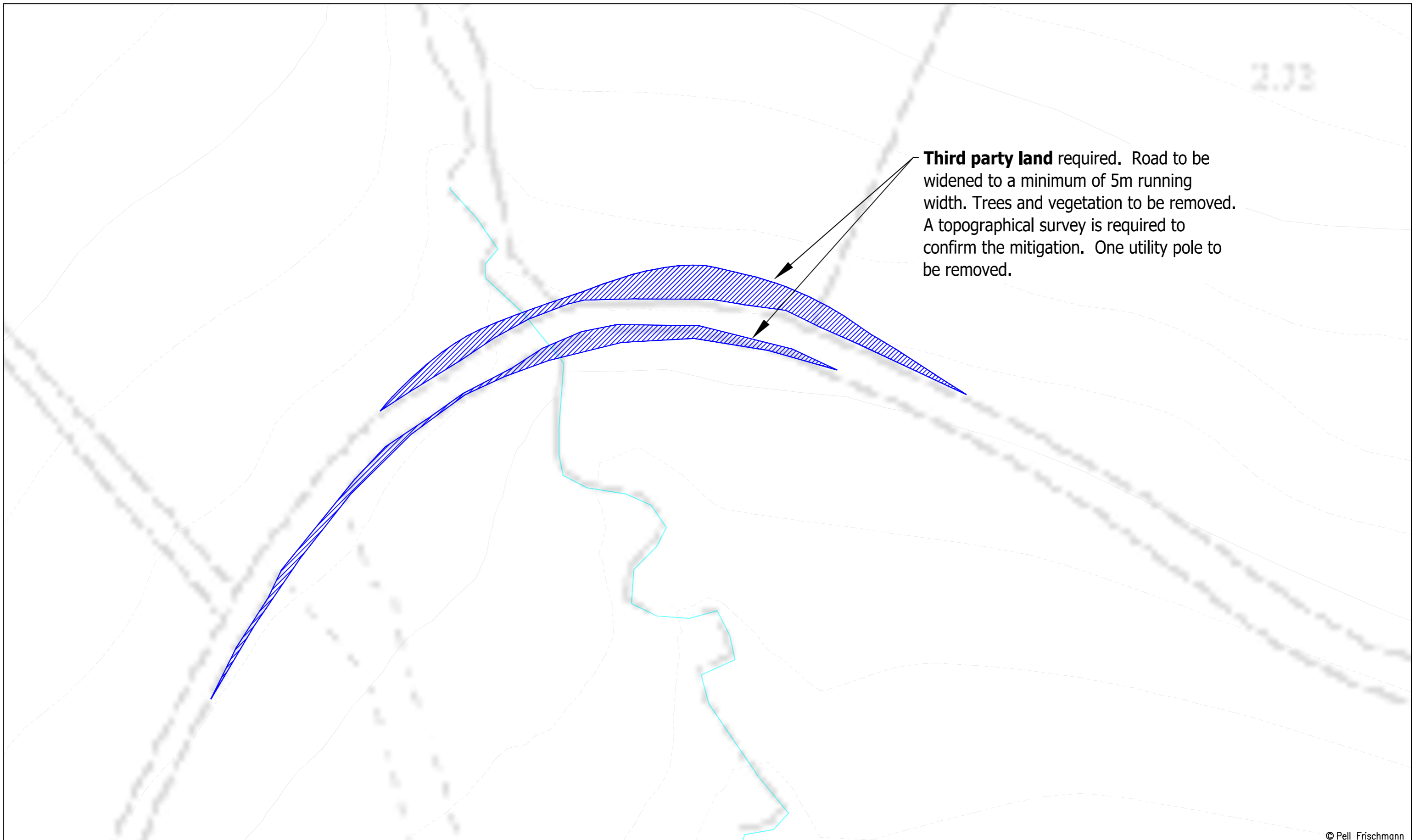


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| | Client | Fehily Timoney | Drawing Title | Siemens SGRE 6-155m and Mid Tower | | Designed | CN | 21/12/2021 | File No. |
| Key — Wheel SPA — Body SPA — Load SPA — Indicative Over-run Over-sail | SPA Location | Left Bend over Bridge | Checked | GB | 22/12/2021 | Point of Interest | 47 | Drawing Status | Draft |
| | | | | Drawing No. | SK34A | Notes: | 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilized, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilizing a topographical survey. | | Revision |

2.73

Third party land required. Road to be widened to a minimum of 5m running width. Trees and vegetation to be removed. A topographical survey is required to confirm the mitigation. One utility pole to be removed.



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| | Client | Fehily Timoney | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg | |
| Key — Wheel SPA — Body SPA — Load SPA — Indicative Over-run Over-sail | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Checked | GB | 22/12/2021 | Drawing Status | Draft | |
| | SPA Location | Left Bend over Bridge | Point of Interest | 47 | | Drawing No. | SK34B | Revision |
| <small>Notes:</small> 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | | | | | | | |

Raised Blade



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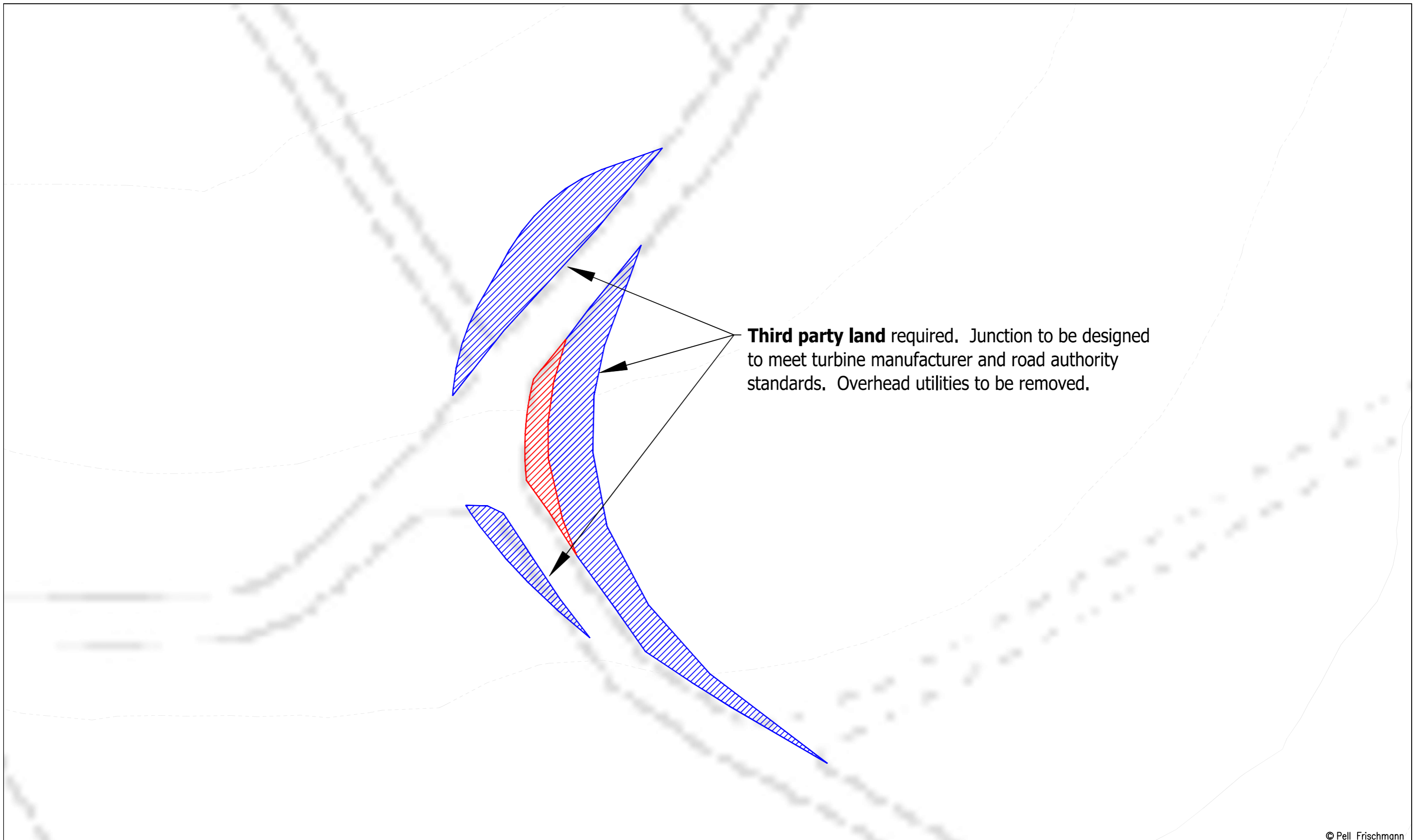
| | | | | | | | | | |
|--|--------------|-----------------------|---------------|-----------------------------------|------------|-------------------|---|----------------|----------|
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| | Client | Fehily Timoney | Drawing Title | Siemens SGRE 6-155m and Mid Tower | | Designed | CN | 21/12/2021 | File No. |
| Key — Wheel SPA — Body SPA — Load SPA — Indicative Over-run Over-sail | SPA Location | Site Access | Checked | GB | 22/12/2021 | Point of Interest | 48 | Drawing Status | Draft |
| | | | | Drawing No. | SK35 | Notes: | 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | Revision |

Tower



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| | Client | Fehily Timoney | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg |
| Key — Wheel SPA — Body SPA — Load SPA — Indicative Over-run Over-sail | SPA Location | Site Access | Checked | GB | 22/12/2021 | Point of Interest | 48 | Drawing Status | Draft |
| | | | Drawing No. | SK35A | Notes: | 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | | Revision |



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| | Client | Fehily Timoney | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg | | |
| Key — Wheel SPA — Body SPA — Load SPA — Indicative Over-run Over-sail | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Checked | GB | 22/12/2021 | Drawing Status | Draft | | |
| | SPA Location | Site Access | Point of Interest | 48 | | Drawing No. | SK35B | Notes: | Revision |
| | | | | | | | 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | 2 | |

Appendix C Tower Turning Procedure

Introduction

Tower loads associated with the proposed Ballinagree Wind Farm are not able to undertake the left turn at the junction of the R582 / L1123 to the immediate east of Millstreet. This short method statement outlines the proposals to allow these loads to turn to the west of Millstreet and proceed onto the L1123 from the west.

Swept path assessments have been previously undertaken at the junction of the R582 / L1123. The works to accommodate the proposed loads are extensive and no third party land rights are available for the necessary accommodation works.

Figure 1 below illustrates the existing R582 / L1123 Junction.

Figure 1: R582 / L1123 Junction



From Google Street View

Detailed discussions with the turbine suppliers and hauliers have been held and a location to allow the loads to be transferred to undertake the turn has been identified at Claratlea. The location is illustrated in Figure 2, with Figure 3 illustrating the current layout of the area. Figure 4 illustrates the clamp trailer to be used.

The area is currently part of the adopted road boundary and no third party land rights are required. Initial discussions with the Applicant's agent and the local roads officers have been held on the proposed turning operations.

Figure 2: Proposed Turning Location at Claratlea



From Google Street View

Figure 3: Turning Area



From Google Street View

Figure 4: Clamp Trailer



From Google Street View

Proposed Turning Operation

During deliveries, loads will proceed ahead at the junction of the R582 / L1123, passing through the centre of Millstreet. Loads will proceed westbound on the R582 towards Claratlea.

At Claratlea, the westbound lane will be coned off and traffic management cones and temporary traffic signals will be provided to create a safe working area for staff undertaking the turning movements. The road area is not sufficient to turn the whole load consist, so instead, the tower will be laid down and the load adaptor clamps released. The clamps will then be collected by the load tractor unit and turned at the Coillte forestry plantation junction located to the west of the turning area.

Once turned, the clamps and tractor unit will return to the tower section and will reengage the tower section. Now reloaded, the load will proceed eastbound towards Milltown, turning right onto the L1123 and proceeding onwards to the development site.

A telehandler will be provided at Claratlea to help disengage the clamps and to shunt them together. The clamps can engage with each other to allow the load to turn at the Coillte plantation junction. No lifting of the loads by cranes are required. The clamp units can raise and lower the tower section to the ground with their internal hydraulic actuators.

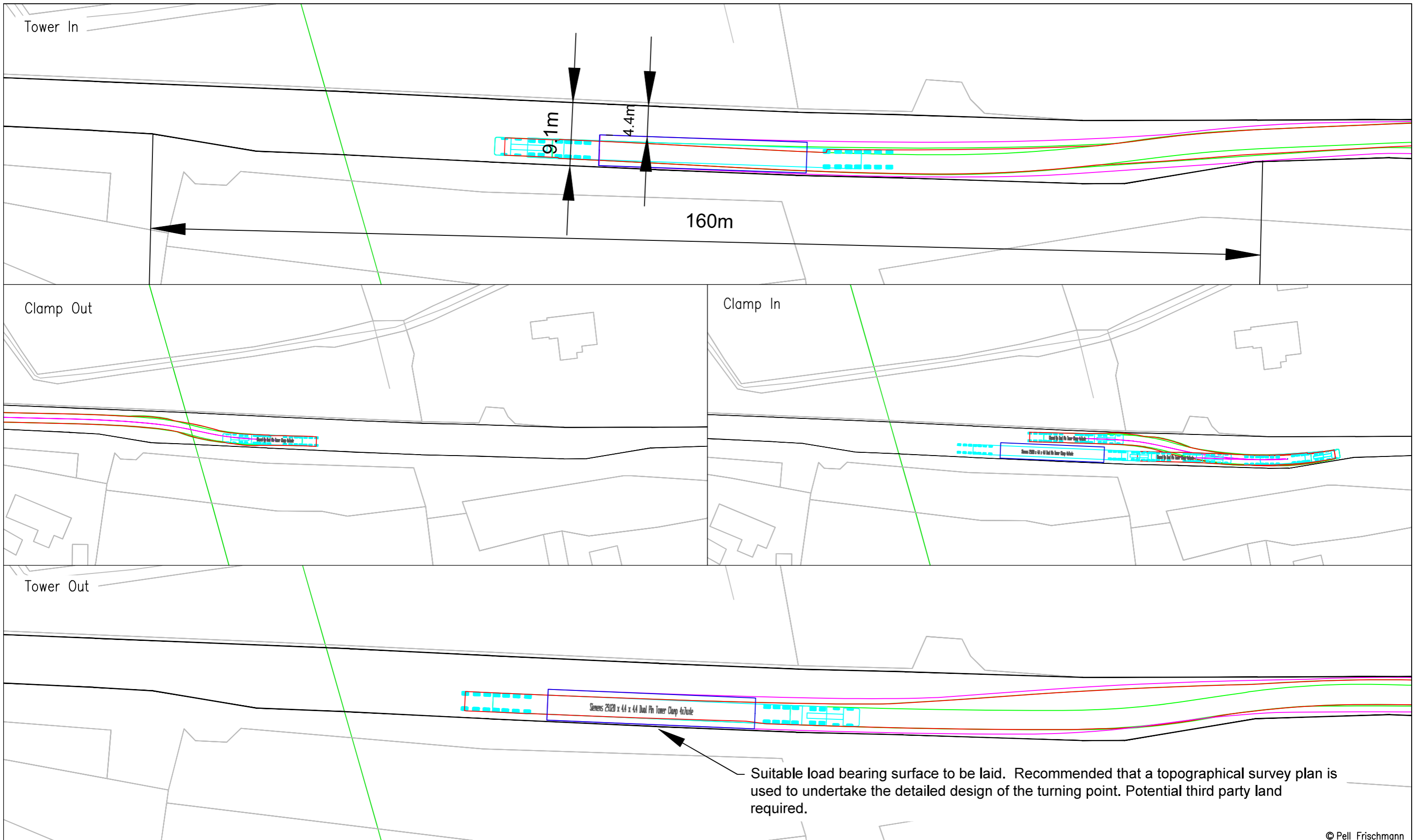
To minimise disruption, it is proposed that these works are undertaken at night or outside of peak traffic times. A detailed traffic management plan illustrating the coning and signage requirements will be prepared along with traffic signal layouts and timings for approval by the roads authority following consent of the application and can be secured by planning condition.

To help facilitate the turning movements, the verge vegetation will be trimmed back to improve clearances and forward visibility for all road users.

It is estimated that from entering Milltown, through to turning the loads and making the right turn on the L1123 would take up to 45 minutes per load.

A set of swept path drawings have been undertaken and are presented in Appendix A to help illustrate the proposed operation.

The proposals have been discussed with turbine hauliers who are comfortable with the principal of the proposals.



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| | Client | Fehily Timoney | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg | |
| Key | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Checked | GB | 22/12/2021 | Drawing Status | Draft | |
| | SPA Location | Proposed Tower Turning Point Claratlea | Point of Interest | 39 | | Drawing No. | TT1 | |
| | | | Notes: | 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | | | Revision |



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| | Client | Fehily Timoney | Drawing Title | Siemens SGRE 6-155m and Mid Tower | Designed | CN | 21/12/2021 | File No. | Ballinagree Tracking ITM v6 211221.dwg |
| Key Wheel SPA (Red line) Body SPA (Green line) Load SPA (Magenta line) Indicative (Cyan line) Over-run (Red hatched box) Over-sail (Blue hatched box) | SPA Location | Proposed Clamp Vehicle Turning Head Rathduane | Checked | GB | 22/12/2021 | Point of Interest | 39 | Drawing Status | Draft |
| | | | Drawing No. | TT2 | Notes: | 1. A test run should be carried out to confirm swept path analyses prior to construction. 2. Not for construction. 3. Where aerial imagery has been utilised, PF accept no responsibility for the accuracy of the mapping. All mitigation should be confirmed through a test run or utilising a topographical survey. | | | Revision |