

Tween Bridge Solar Farm

7.7 Outline Construction Traffic Management Plan

Planning Act 2008 Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

APFP Regulation 5(2)(q)

Document Reference: 7.7

August 2025

Revision 1

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1 Introduction

- 1.1.1. This Outline Construction Traffic Management Plan (CTMP) [Document Reference 7.9.7] has been prepared by Pegasus Group on behalf of RWE Renewables UK Solar and Storage Ltd (the Applicant) in order to address the traffic and transportation issues associated with the construction of a ground mounted solar park with an intended design capacity of over 50MWp (megawatts peak), and a battery energy storage facility.
- 1.1.2. The Scheme is located within the Yorkshire and Humber regions. The Order Limits extends to approximately 1,831 hectares, centred at approximately 10 kilometres to the northeast of Doncaster and 14 kilometres to the west of Scunthorpe. From the largest Land Parcel, Junction 5 of the M18 is approximately 2.5 kilometres to the west and Junction 1 of the M180 is approximately four kilometres to the southwest.
- 1.1.3. Due to the size of the Scheme and the number of associated Land Parcels, access to the Scheme will be provided in a number of locations.
- 1.1.4. This Outline CTMP describes the arrangements that are proposed for the period of construction activities at the Scheme and sets out the following:
 - Proposed access arrangements;
 - Routing for construction traffic;
 - Vehicle numbers, size and frequency; and
 - Proposed mitigation, including condition surveys.
- 1.1.5. It will be the responsibility of the appointed contractor(s) to comply with all statutory regulations and guidelines as appropriate, in relation to construction and movement activities.
- 1.1.6. The Outline CTMP will ultimately become the CTMP post consent. The appointed contractor(s) will be provided with a copy of the CTMP and will comply with it in accordance with the DCO. The CTMP will form part of the information provided as part of the construction personnel's on-site induction processes. The contact details of the contractor(s), including a 24-hour emergency contact number, and those of the highway department at City of Doncaster Council (CDC) and North

Lincolnshire Council (NLC) will be exchanged before commencement of the works within the Order Limits to deliver the Scheme.

2 Scheme Context

2.1. Scheme Location and Description

- 2.1.1. The Scheme is centred at approximately ten kilometres to the northeast of Doncaster and 14 kilometres to the west of Scunthorpe. The Order Limits is split across the administrative boundaries of the City of Doncaster Council (CDC) and North Lincolnshire Council (NLC). The location of the Scheme in its wider geographical context is shown in Figure 2.1 Indicative Access Strategy.
- 2.1.2. The Order Limits comprises five separate Land Parcels and extends to approximately 1,831 hectares. The Land Parcels comprise of a number of Panel Areas, as summarised below:
 - Land Parcel A, comprising of 23 Panel Areas.
 - Land Parcel B, comprising of 8 Panel Areas.
 - Land Parcel C, comprising of 9 Panel Areas.
 - Land Parcel D, comprising of 16 Panel Areas;
 - Land Parcel E, comprising of 20 Panel Areas.
- 2.1.3. The Land Parcels are shown on **ES Figure 1.2 Land Parcel Plan [Document Reference 6.4.1.2]**, with a breakdown of the Land Parcels into Panel Areas within the Order Limits shown on **ES Figure 1.3 Development Parcel Plan [Document Reference 6.4.1.3].**
- 2.1.4. A Scheme location plan is included at Figure 2.1 Indicative Access Strategy and indicative layouts are included within the wider submission (see Indicative Operational Layout Plan (Fixed Solar Panel)/2.2b Indicative Operational Layout Plan (Fixed and Tracker Solar Panel) [Document Reference 6.4.2.2]) of the ES.
- 2.1.5. The Order Limits are included at Appendix A.
- 2.1.6. The Stainforth and Keadby Canal and the South Humberside Mainline railway line run in an east to west direction to the south of Land Parcel A.

2.2. Strategic Road Network

2.2.1. It is anticipated that all materials associated with the construction of the Scheme will use the Strategic Road Network (SRN) to access the local highway network, from which the Land Parcels are served. The SRN is managed by National Highways. A summary of the sections of the SRN which are closest to the site is provided below.

M18

2.2.2. The M18 motorway routes between M1 Junction 32 in the northeast to M62 Junction 35 in the southwest. It is located to the west of Thorne, approximately 1.5 kilometres as the crow flies from the closest point of Land Parcel A. M18 Junction 6, the 'Waterside Roundabout', located to the northwest of Thorne, and Junction 5 (which connects to the M180), located to the southwest of Thorne, are the two closest SRN junctions to the Scheme.

M180

2.2.3. The M18O routes west to east between M18 Junction 5 and The Barnetby Interchange to the north of Barnetby Le Wold, approximately 14 kilometres west of Immingham, where it becomes the A18O. The M18O Junction 1 (which connects to the A18 and the 'Tudworth Roundabout') and Junction 2 (which connects with the A161 with on/off slips) are located within the vicinity of the Scheme.

2.3. Local Highway Network

- 2.3.1. A network of local roads connects the different Land Parcels as well as providing links to the wider local and strategic road networks. The road network is shown on Figure 2.1 within Appendix 12.3 Baseline Traffic Survey Report [Document Reference 6.3.12.3].
- 2.3.2. The roads summarised below form the traffic routes that will be used to deliver materials and personnel to the Scheme during its construction.

A18

2.3.3. The A18 is a single carriageway road which is approximately seven metres wide. It is subject to the National Speed Limit (60mph) and facilitates travel between the towns of Hatfield to the west and Scunthorpe to the east. It provides direct access to farmland along its extent. The section of the A18 within the vicinity of the

Scheme is generally unlit. Streetlighting and footways are generally provided within the vicinity of local settlements.

A161

2.3.4. The A161 is a single carriageway road which is approximately seven metres wide. It connects to the A18 via a gyratory junction to the south of Ealand, and can be used to join the M180 via Junction 2 in the south. The A161 passes through Crowle to the east of the Scheme. It is subject to varying speed limits along its length, with the National Speed Limit south of the A18 and 40mph and 30mph sections through Crowle.

Sandtoft Road

2.3.5. Sandtoft Road is a single carriageway road measuring around five to six metres in width. It is subject to the National Speed Limit and subject to a 7.5 tonne weight restriction, except for access. To the east it becomes Low Levels Bank Road and to the west it connects to the A18 via a priority junction. It provides direct access to farmland along its extent. There are no footways or street lighting provided.

Low Levels Bank

2.3.6. Low Levels Bank consists of a single carriageway measuring approximately five metres in width. It is subject to the National Speed Limit. To the east, it becomes Thorne Road and to the west it becomes Sandtoft Road. It provides direct access to farmland along its extent. There are no footways or street lighting provided.

Coulman Street

- 2.3.7. Coulman Street is a single carriageway road that measures approximately seven to eight metres in width and is subject to a 30mph speed limit. It connects with King Edward/Marshland Road via a priority junction to the north and connects to Church Balk/Moor Edges Road and Wike Gate Road via a crossroad junction to the south.
- 2.3.8. A footway on the eastern side of the carriageway extends approximately 230 metres south of the King Edward/Marshland Road junction and a continuous footway route along the western side of the carriageway. Street lighting is provided along its extent. It provides direct access to residential properties and industrial land uses along its extent.

Marshland Road

- 2.3.9. Marshland Road is a single carriageway urban street that measures approximately 6.5 to seven metres wide. It is subject to a 30mph speed limit. Footways are provided on both sides of the road, and it is lit. It provides direct access to residential properties, retail, leisure and industrial land uses along its extent.
- 2.3.10. Approximately 1.7 kilometres to the north of its junction with Coulman Street it crosses the Hull and Doncaster Branch Line railway via a level crossing where it becomes Moorends Road.

North Common Road

2.3.11. North Common Road is a single carriageway road that measures approximately six metres wide. It reduces to a single lane over a ditch around 450 metres southwest of its junction with Marshland Road, although visibility along the road is good. It connects to Marshland Road in the east and Selby Road in the west, both via priority junctions.

Moor Edges Road

2.3.12. Moor Edges Road is a single carriageway that measures approximately four metres wide and is subject to the National Speed Limit. To the west it becomes Church Balk, leading in to Thorne, and to the south it becomes High Bridge Road. It provides direct access to farmland and industrial land uses along its extent. There are no footways or street lighting provided.

High Bridge Road

2.3.13. High Bridge Road is a single carriageway road measuring approximately three to four metres in width. It is subject to the National Speed Limit. To the east it becomes Green Bank. To the west it becomes Moor Edges Road. High Bridge Road provides direct access to farmland and industrial land uses along its extent. There are no footways or street lighting provided. Approximately 480 metres to the south of Moor Edges Road, High Bridge Road crosses the South Humberside Main Line railway via a level crossing.

Green Bank

2.3.14. Green Bank is a single carriageway road measuring approximately four metres in width. It is subject to the National Speed Limit. To the north it narrows to three metres as it crosses over the Stainforth and Keadby Canal before connecting to High Bridge Road. To the south it connects onto the A18 via a priority junction.

Where the road crosses the canal there is a 7.5 tonne weight restriction. It provides direct access to farmland along its extent.

Marsh Road

- 2.3.15. Marsh Road is an unmarked single carriageway that measures approximately four metres wide and currently serves a small number of dwellings and agricultural buildings. No footways are provided, and street lighting is provided at its north eastern extent only, within the vicinity of dwellings within Crowle.
- 2.3.16. To the southwest it becomes Crook O'Moor Road and to the northeast it forms the minor arm of a priority junction with Cross Street and Windsor Road.
- 2.3.17. Marsh Road is subject to the national speed limit which reduces to a 30mph speed limit approximately 90 metres southwest of the junction with Cross Street and Windsor Road. There are double yellow lines on both sides of the carriageway at this junction.

Crow Tree Bank

2.3.18. Crow Tree Bank is a single carriageway road measuring approximately six to seven metres wide. It is subject to the National Speed Limit. It connects onto High Levels Bank to the north and High Bridge Road to the south, both via priority junctions. It provides direct access to farmland and industrial land uses along its extent. A short section of footway extends south for approximately 60 metres from the High Levels Bank junction. There is no street lighting provided.

Clay Bank Road

2.3.19. Clay Bank Road is a single carriageway road measuring approximately three to four metres wide. It is subject to the National Speed Limit. It connects to Green Bank to the east and to South End/Double Bridges Road to the west via priority junctions. It provides direct access to farmland along its extent. There are no footways or street lighting provided.

Godnow Road

2.3.20. Godnow Road is a single carriageway residential road in the south of the built environment of Crowle that measures approximately 6.5 metres wide, serve directly from the A161. It has an approximate 20 metre wide bell mouth at its connection to the A161, with an approximate 15 metre taper on the southern side. It has a 30mph speed limit, with footways measuring between one and 1.5 metres provided on both sides of the carriageway street lighting also provided.

Windsor Road

- 2.3.21. Windsor Road is a single carriageway residential road in the west of the built environment of Crowle that measures approximately five metres wide, accessed from Godnow Road in the south and providing a connection to Marsh Road/Cross Street in the north. Footways measuring approximately one metre wide are provided on both sides of the carriageway, with street lighting also provided.
- 2.3.22. Approximately 100 metres south of the junction between Marsh Road/Cross Street/Windsor Road is Crowle Primary School. Warning signage indicating the school is nearby and that a reduction of the speed limit to 20mph 'when lights show' is present approximately five metres south of the junction between Marsh Road, Cross Street and Windsor Road.

Informal Lanes / Farm Tracks

- 2.3.23. Due to the more rural nature of the Order Limits, some of the Panel Areas are accessed by smaller informal lanes and farm tracks including:
 - Thorne Waste Drain Road.
 - Moor Owners Road; and
 - Crook O'Moor Road.
- 2.3.24. These roads consist of rural lanes within the Order Limits with no kerbs, footways or street lighting. They generally measure around four metres in width.

2.4. Existing Site Accesses

2.4.1. The Scheme currently comprises agricultural land uses. Access to the Order Limits is currently provided via agricultural access points in multiple locations, as shown on Figure 2.1 – Indicative Access Strategy.

3 Proposed Scheme Access Arrangements

3.1. Order Limits Access

3.1.1. HGVs will route directly to the parcels from the public highway where large equipment is required to be delivered.

3.1.2. Due to the large-scale nature of the Scheme, there are multiple access points proposed, as shown in **Figure 3.1 – Proposed Access Arrangements Master** of this document and summarised in **Table 3-1**.

Table 3-1: Proposed Points of Access to the Scheme during the Construction Phase

| Access Location Ref. | Accessed from | Details | Access into Panel Area | Figure Ref. |
|----------------------------|----------------------|--|-----------------------------------|-------------|
| А | Moor Edges Road | Existing industrial access | A6 | 3.2 |
| В | Moor Edges Road | New access | A10 | 3.3 |
| C* | High Bridge Road | Existing agricultural access | Bird Mitigation area (M3(A) | 3.4 |
| D | Green Bank | Existing agricultural access (improvements needed) | C1 | 3.5 |
| E | Green Bank | Existing agricultural access (improvements needed) | C4 | 3.6 |
| F | A18 High Levels Bank | New access | D3/D5 | 3.7 |
| Н | Low Levels Bank | Existing agricultural access | D7 | 3.9 |
| i | Low Levels Bank | Existing agricultural access (improvements needed) | D15 | 3.10 |
| J | Low Levels Bank | Existing agricultural access (improvements needed) | D14 | 3.11 |
| К | Low Levels Bank | Existing agricultural access | D16 | 3.12 |

| М | A18 High Levels Bank | Existing agricultural access (improvements needed) | D4 | 3.14 |
|-----|----------------------|--|----------|------|
| 0 | A18 High Levels Bank | Existing agricultural access | E1 | 3.16 |
| Р | High Levels Bank | Existing agricultural access | E1 | 3.17 |
| Q | Unnamed Road | Existing agricultural access (improvements needed) | E7 | 3.18 |
| R | Unnamed Road | Existing agricultural access (improvements needed) | E13 | 3.19 |
| S | Marsh Road | New access | B5 | 3.20 |
| W | Low Levels Bank | Existing agricultural access | D12 | 3.24 |
| Y | Jaque's Bank | Existing agricultural access (improvements needed) | C9 | 3.26 |
| Z | Crow Tree Bank | Existing agricultural access | D9 | 3.27 |
| AA | Crook O'Moor Road | New access | B6 & B7 | 3.28 |
| AB | Crook O'Moor Road | New access | B6 & B7 | 3.28 |
| AC* | Marsh Road | Internal access between panel areas | B5 & B8 | 3.29 |
| AD | Internal Crossing | Internal access between panel areas | B5 & B2 | 3.30 |
| AE* | Internal Crossing | Internal access between panel areas | D7 & D10 | 3.31 |

| AH* | A18 | New access | E2 | 3.34 |
|-----|------------|------------------------------|--|------|
| Al | A18 | New access | C9 | 3.35 |
| AJ | Green Bank | Existing agricultural access | - | 3.36 |
| AK | A161 | Existing agricultural access | Bird Mitigation Area (M15(E)) | 3.37 |

Note: further to changes as the Scheme has evolved, there is no access L, AF or AG but the lettering has been retained for ease of reference. Locations G, T, U and V are off-site junctions which do not provide direct access to the Scheme and therefore are not included above.

- 3.1.3. It is considered that suitable visibility splays can be provided for each access location within the extents of the Order Limits and all construction vehicles will enter and exit the Scheme in forward gear, as shown on Figure 3.2 to Figure 3.33 (Proposed Access Arrangements Access A to Access AG). Vegetation within the visibility splays will be maintained at a height of no more than 600mm, and any loss of vegetation is set out in the Outline Landscape Ecological Management Plan (LEMP) within Volume 7 of this ES [Document Reference 7.6].
- 3.1.4. A description of each access point is summarised below.

3.2. Location A

- 3.2.1. Access A is an existing access to Causeway Farm which measures approximately eight metres wide and is served via Moor Edges Road. A swept path assessment has been undertaken at **Figure 3.2 Proposed Access Arrangements Access A**, which indicates that the existing junction dimensions are of a suitable size to facilitate access by a 16.5m long HGV.
- 3.2.2. As shown at **Figure 3.2 Proposed Access Arrangements Access A**, a visibility splay of 2.4 x 215 metres is shown to be achievable to the nearside kerbline west of the access, commensurate with DMRB guidance [Ref-1] for the National Speed Limit (60mph). A visibility splay of 2.4 x 60 metres to the nearside kerbline south of the access is the maximum achievable splay. On site observations suggest that vehicle speeds on Moor Edges Road to the south of the access are much lower

^{*} Access locations denoted by an asterix do not require access by HGVs.

than the signed 60mph speed limit, and this existing access is frequented by large, slow moving agricultural vehicles on a regular basis with no apparent highway safety issue (as set out in **ES Appendix 12.1 - Transport Statement [Document Reference 6.3.12.1]).** Therefore, whilst the southern visibility splay does not accord with the guidance, the visibility splays are considered to be acceptable.

3.3. Location B

- 3.3.1. Access B proposes the construction of a new access from Moor Edges Road. As shown at Figure 3.3 Proposed Access Arrangements Access B it will be provided with a six metre wide carriageway and junction radii of 14 metres on the northern side and six metres on the southern side. An 8.2 metre taper will also be provided on the northern side of the access to facilitate the arrival and departure of the largest HGVs. The location of the access is generally open and limited vegetation will need to be removed to accommodate it. A new ditch crossing, and culvert will be required.
- 3.3.2. A visibility splay of 2.4 x 215 metres to the north is shown to be achievable to the nearside kerbline commensurate with DMRB guidance [Ref-1] for the national (60mph) speed limit. A maximum achievable visibility splay to the south of 2.4 x 77.98 metres to the is shown to be achievable to the nearside kerbline. This will be managed during the construction phase via banksmen, as set out further at Chapter 6 of this document.
- 3.3.3. A swept path assessment for a 16.5m long HGV has been undertaken at Figure 3.3
 Proposed Access Arrangements Access B, which indicates that a vehicle of this size is able to enter and exit the proposed access arrangement.

3.4. Location C

- 3.4.1. Access C is an existing agricultural access from High Bridge Road. As shown at Figure 3.4 Proposed Access Arrangements Access C. Visibility splays of 2.4 x 215 metres to the nearside kerbline are shown to be achievable to the west, commensurate with DMRB guidance [Ref-1] for the national (60mph) speed limit in this location, and 2.4 x 35.6 metres towards Maud's swing Bridge.
- 3.4.2. Figure 3.4 Proposed Access Arrangements Access C also contains a swept path assessment for a 13.7 metre long tractor and trailer confirming that a vehicle of this size is able to enter and exit in a forward gear at the existing access with no improvements required.

3.5. Location D

- 3.5.1. Access D proposes a new access to be served from the eastern side of Green Bank.
- 3.5.2. As shown at Figure 3.5 Proposed Access Arrangements Access D it will be provided with a six metre wide carriageway with a 12 metre junction radius on the southern side and a two metre radius on the northern side of the bell mouth, proposed to prevent construction vehicles entering and exiting the Order Limits to the north. Further mitigation and management is set out in Chapter 6 of this document.
- 3.5.3. A visibility splay of 2.4 x 215 metres to the nearside kerbline is shown to be achievable to the south, commensurate with DMRB guidance for the speed limit of the road (national speed limit; 60mph). A maximum 2.4 x 160.5 metre visibility splay to the nearside kerbline to the north is shown to be achievable which would be commensurate with DMRB guidance [Ref-1] for vehicle speeds of circa 50mph. However, based on on-site observations it is anticipated that vehicle speeds along Green Bank are lower in reality, given its rural nature.
- 3.5.4. In order to provide the access point and provide the visibility splays, hedgerow to the north of the access will need to be removed and/or reduced in height.
- 3.5.5. **Figure 3.5 Proposed Access Arrangements Access D** contains a swept path assessment for a 16.5 metre long HGV confirming that a vehicle of this size is able to enter and exit in a forward gear, from the south only.

3.6. Location E

- 3.6.1. Access E proposes the use of an existing agricultural access from the western side of Green Bank. As shown at **Figure 3.6 Proposed Access Arrangements Access E**, the access will be upgraded with a six metre wide carriageway, with an eight metre radii on the southern side and a six metre radii on the northern side of the access. An 8.6 metre taper will also be provided on the southern side of the junction to assist the largest HGVs entering and exiting the Order Limits. Visibility splays of 2.4 x 215 metres to the nearside kerbline are shown to be achievable in both directions commensurate with DMRB guidance [Ref-1] for the national (60mph) speed limit of the road.
- 3.6.2. The location of the access is generally open and limited vegetation will need to be removed to accommodate it. An extended ditch crossing and culvert will be required.

3.6.3. **Figure 3.6 - Proposed Access Arrangements - Access E** also contains a swept path assessment for a 16.5 metre long HGV confirming that a vehicle of this size is able to enter and exit in a forward gear.

3.7. Location F

- 3.7.1. Access F proposes the use of an existing agricultural field gate access to the south of High Levels Bank. As shown at **Figure 3.7 Proposed Access Arrangements Access F**, the access is proposed to be formalised with a 10 metre junction radius and 17.4 metre long taper provided on the western side of the access. Visibility splays of 2.4 x 215 metres to the nearside kerbline are shown to be achievable in both directions commensurate with DMRB guidance [Ref-1] for the national (60mph) speed limit of the road.
- 3.7.2. The location of the access is generally open and limited vegetation will need to be removed to accommodate it. An extended ditch crossing and culvert will be required.
- 3.7.3. Figure 3.7 Proposed Access Arrangements Access F also contains a swept path assessment for a 16.5 metre long HGV confirming that a vehicle of this size is able to enter and exit in a forward gear to and from the west.

3.8. Location H

- 3.8.1. Access H will utilise an existing agricultural access consisting of a culvert over a drainage ditch on the northern side of High Levels Bank. A swept path assessment has been undertaken at **Figure 3.9 Proposed Access Arrangements Access H**, which indicates that the existing junction dimensions are of a suitable size to facilitate access by a 16.5m long HGV to and from the west, in accordance with the construction traffic routes set out in **Chapter 4** of this document. Further mitigation and management is set out in **Chapter 6** of this document. Therefore, no further upgrades to the access are proposed.
- 3.8.2. As shown at **Figure 3.9 Proposed Access Arrangements Access H** visibility splays of 2.4 x 215 metres are shown to be achievable to the nearside kerbline in both directions commensurate with DMRB guidance [Ref-1] for the national (60mph) speed limit of the road.

3.9. Location i

3.9.1. Access i proposes the use of an existing agricultural access consisting of a culvert over a drainage ditch on the southern side of Low Levels Bank. As shown at **Figure**

- **3.10 Proposed Access Arrangements Access i** the access is proposed to be upgraded with a six metre wide carriageway, with a 10 metre radii on the western side and a two metre radii on the eastern side of the junction. This is proposed to prevent construction vehicles entering and exiting the Order Limits to the east, in accordance with the construction traffic routes set out in **Chapter 4** of this document. Visibility splays of 2.4 x 215 metres are shown to be achievable to the nearside kerbline in both directions commensurate with DMRB guidance [Ref-1] for the national (60mph) speed limit of the road.
- 3.9.2. The location of the access is generally open and limited vegetation will need to be removed to accommodate it. An extended ditch crossing, and culvert will be required. There is a row of telegraph poles along the carriageway edge. However, in accordance with DMRB these less than 550mm and are considered to be intermittent obstructions to the visibility splays and it is therefore considered appropriate for them to remain in situ.
- 3.9.3. **Figure 3.10 Proposed Access Arrangements Access i** also contains a swept path assessment for a 16.5 metre long HGV confirming that a vehicle of this size is able to enter and exit in a forward gear.

3.10. Location J

- 3.10.1. Access J proposes the use of an existing agricultural access on the northern side of Low Levels Bank. As shown at Figure 3.11 Proposed Access Arrangements Access J, the access is proposed to be upgraded with a six metre wide carriageway, with a six metre radii on the western side and a four metre radii on the eastern side of the junction. This is proposed to prevent construction vehicles entering and exiting the Order Limits to the east, in accordance with the construction traffic routes set out in Chapter 4 of this document. Visibility splays of 2.4 x 215 metres are shown to be achievable to the nearside kerbline in both directions commensurate with DMRB guidance [Ref-1] for the national (60mph) speed limit of the road.
- 3.10.2. The location of the access is generally open and limited vegetation will need to be removed to accommodate it. An extended ditch crossing, and culvert will be required.
- 3.10.3. **Figure 3.11 Proposed Access Arrangements Access J** also contains a swept path assessment for a 16.5m long HGV confirming that a vehicle of this size is able to enter and exit in a forward gear.

3.11. Location K

- 3.11.1. Access K is an existing agricultural access consisting of a culvert over a drainage ditch on the southern side of Low Levels Bank, approximately 140 metres east of Access J. A swept path assessment has been undertaken at Figure 3.12 Proposed Access Arrangements Access K which indicates that the existing junction dimensions are of a suitable size to facilitate access by a 16.5m long HGV. The access is therefore considered to be suitable to accommodate construction vehicles. Temporary traffic measures will be implemented at the access, such as banksmen or temporary signals, in order to control the vehicle flow and speeds of Low Levels Bank when large construction vehicles are entering and egressing the Order Limits. The precise location and details will be agreed with the highway authority in due course.
- 3.11.2. **Figure 3.12 Proposed Access Arrangements Access K** also shows that visibility splays of 2.4 x 215 metres are shown to be achievable to the nearside kerbline in both directions commensurate with DMRB guidance for the national (60mph) speed limit for the road.

3.12. Location M

- 3.12.1. Access M is an existing agricultural access consisting of a culvert over a drainage ditch on the southern side of the A18 High Levels Bank. A swept path assessment has been undertaken at Figure 3.14 Proposed Access Arrangements Access M, which indicates that the existing junction will need to be widened with a 14 metre radius and 14.2 metre taper on the western side to facilitate access by a 16.5m long HGV. Construction vehicles will be advised that access will only be available to and from the west, in accordance with the construction traffic routes set out in Chapter 4 of this document. Temporary traffic measures will be implemented at the access, such as banksmen or temporary signals, in order to control the vehicle flow and speeds of High Levels Bank when large construction vehicles are entering and egressing the Order Limits, and to ensure that vehicles approach and exit in the right direction. The precise location and details will be agreed with the highway authority in due course.
- 3.12.2. Figure 3.14- Proposed Access Arrangements Access M also shows that visibility splays of 2.4 x 215 metres are shown to be achievable to the nearside kerbline in both directions commensurate with DMRB guidance [Ref-1] for the national (60mph) speed limit.

3.13. Location N

- 3.13.1. Access N is an existing agricultural access which measures approximately 15 metres wide at the connection point of the bell mouth with the northern side of the A18 High Level Bank. A swept path assessment has been undertaken at Figure 3.15 Proposed Access Arrangements Access N, which indicates that the existing junction dimensions are of a suitable size to facilitate access by 16.5m long HGV. The access is therefore considered to be suitable to accommodate construction vehicles
- 3.13.2. **Figure 3.15 Proposed Access Arrangements Access N** also shows that existing visibility splays of 2.4 x 215 metres achievable to the nearside kerb lines in both directions commensurate with DMRB guidance [Ref-1] for the national (60 mph) speed limit of the road. The access is therefore considered to be suitable to accommodate construction vehicles.

3.14. Location O

- 3.14.1. Access O is an existing agricultural access consisting of a concrete bridge over a drainage ditch on the southern side of the A18 High Levels Bank. A swept path assessment has been undertaken at Figure 3.16 Proposed Access Arrangements Access O, which indicates that the existing junction dimensions are of a suitable size to facilitate access by a 16.5m long HGV accessing and egressing to and from the west. A survey of the bridge will be carried out as appropriate to confirm the suitability of the bridge to accommodate the anticipated construction vehicle movements. If required, the bridge will be reinforced or replaced to accommodate construction traffic. Temporary traffic measures will be implemented at the access, such as banksmen or temporary signals, in order to control the vehicle flow and speeds of High Levels Bank when large construction vehicles are entering and egressing the Order Limits. The precise location and details will be agreed with the highway authority in due course.
- 3.14.2. Figure 3.16 Proposed Access Arrangements Access O also shows that visibility splays of 2.4 x 215 metres are shown to be achievable to the nearside kerbline in both directions commensurate with DMRB guidance [Ref-1] for the national (60mph) speed limit of the road.

3.15. Location P

3.15.1. Access P is an existing agricultural access consisting of a concrete bridge over a drainage ditch served from the southern side of an unnamed road which measures

approximately 125 metres long between High Levels Bank in the east and the A18 in the west. The swept path assessment of a 16.5m long HGV shown in **Figure 3.17** – **Proposed Access Arrangements – Access P** indicates that the bridge will be required to be upgraded/widened in order to accommodate large construction vehicles.

3.15.2. Figure 3.17 – Proposed Access Arrangements – Access P shows a visibility splay of 2.4 metres x 215 metres to the east is shown to be achievable, extending along High Levels Bank. Although the visibility splay is outside of the red line boundary to the east, it crosses a ditch and is within the adopted highway boundary. On this basis, it is considered to be unlikely that a structure will be built within or over the highway ditch to a height which impedes visibility 0.6 metres above the High Levels Bank or unnamed road ground level. A visibility splay of 2.4 metres x 51.8 metres is also shown to be achievable to the centre of the unnamed road's junction with the A18 from which oncoming traffic will be travelling from.

3.16. Location Q

- 3.16.1. Access Q is an existing agricultural access which measures approximately 20 metres wide where the bell mouth meets the carriageway on the eastern side of High Levels Bank. The access is proposed to be widened by approximately four metres to the north, in order to avoid an easement to an existing telecoms mast, with a 10 metre junction radii to be provided. As shown at Figure 3.18 Proposed Access Arrangements Access Q, existing visibility splays of 2.4 metres x 62.2 metres to the north and 2.4 metres x 64.1 metres to the south are shown to be achievable to the nearside kerbline. Temporary traffic measures will be implemented at the access, such as banksmen or temporary signals, in order to control the vehicle flow and speeds of High Levels Bank when large construction vehicles are entering and egressing the Order Limits. The precise location and details will be agreed with the highway authority in due course.
- 3.16.2. **Figure 3.18 Proposed Access Arrangements Access Q** also contains a swept path assessment for a 16.5m long HGV confirming that a vehicle of this size is able to enter and exit in a forward gear.

3.17. Location S

3.17.1. Access S proposes a new access from the northern side of Marsh Road. As identified at Figure 3.20 - Proposed Access Arrangements - Access S, the junction will feature a six metre wide carriageway with an eight metre radii on the southern side and a six metre radii with 14 metre taper on the northern side of the

- bell mouth. Visibility splays of 2.4 x 215 metres to the nearside kerbline are shown to be achievable in both directions, commensurate with DMRB guidance [Ref-1] for the national (60mph) speed limit of the road.
- 3.17.2. **Figure 3.13 Proposed Access Arrangements Access S** also contains a swept path assessment for a 16.5 metre long HGV confirming that a vehicle of this size is able to enter and exit in a forward gear.

3.18. Location W

- 3.18.1. Access W is an existing agricultural access which measures approximately 17 metres wide at its point of connection with the northern side of Low Levels Bank. A swept path assessment has been undertaken at Figure 3.24 Proposed Access Arrangements Access W, which indicates that the existing junction dimensions are of a suitable size to facilitate access by a 16.5m long HGV to and from the east, from which construction vehicles are anticipated to be routing to the Order Limits.
- 3.18.2. Figure 3.24 Proposed Access Arrangements Access W also confirms that visibility splays of 2.4 metres x 215 metres are shown to be achievable to the nearside kerbline using land within the Order Limits and adopted highway boundary in both directions, commensurate with DMRB guidelines [Ref-1] for the national (60mph) speed limit of the road.

3.19. Location X

- 3.19.1. Access X is an existing agricultural access which measures approximately 16 metres wide where the bell mouth meets the carriageway on the eastern side of High Levels Bank. The access is approximately 30 metres south of Access R. A swept path assessment has been undertaken at Figure 3.25 Proposed Access Arrangements Access X which indicates that the existing access arrangement can facilitate access by a 16.5m long HGV to and from the north, from which construction vehicles are anticipated to be routing to the Order Limits.
- 3.19.2. As shown at Figure 3.25 Proposed Access Arrangements Access X, a visibility splay of 2.4 metres x 215 metres is shown to be achievable to the north, and 2.4 metres x 14 metres is achievable to the south without the removal of vegetation to increase the visibility splay. However, this is an existing situation with no highway safety record (as set out in ES Appendix 12.1 Transport Statement [Document Reference 6.3.12.1]). Temporary traffic measures will be implemented on the unnamed road, such as banksmen or temporary signals, when large construction vehicles are entering and egressing the Order Limits. The precise location and details will be agreed with the highway authority in due course.

3.20. Location Y

- 3.20.1. Access Y is an existing agricultural access which measures approximately 12 metres wide at its point of connection with the carriageway, located to the west of Jaque's Bank. A swept path assessment has been undertaken at Figure 3.26 Proposed Access Arrangements Access Y which indicates that the existing junction dimensions are of a suitable size to facilitate access by a 16.5m long HGV without requiring amendments to the adjacent ditches. Therefore, no further upgrades to the access are proposed. Temporary traffic measures will be implemented on Jaque's Bank, such as banksmen or temporary signals, when large construction vehicles are entering and egressing the Order Limits. The precise location and details will be agreed with the highway authority in due course.
- 3.20.2. Figure 3.26 Proposed Access Arrangements Access Y also confirms that visibility splays of 2.4 x 215 metres are shown to be achievable to the nearside kerbline in both directions commensurate with the national (60mph) speed limit of the road.

3.21. Location Z

- 3.21.1. Access Z is an existing agricultural access which measures approximately 11 metres wide at its point of connection with the eastern side of Crow Tree Bank. A swept path assessment has been undertaken at **Figure 3.27 Proposed Access Arrangements Access z** which indicates that the existing junction dimensions are of a suitable size to facilitate access by a 16.5m long HGV. Therefore, no further upgrades to the access are proposed.
- 3.21.2. Figure 3.27 Proposed Access Arrangements Access Z also confirms that existing visibility splays of 2.4 x 215 metres to the south to the nearside kerbline and 2.4 x 54.93 metres to the north to oncoming vehicles are shown to be achievable without removing vegetation. However, this is an existing situation with no highway safety record (as set out in ES Appendix 12.1 Transport Statement [Document Reference 6.3.12.1]). Temporary traffic measures will be implemented on the unnamed road, such as banksmen or temporary signals, when large construction vehicles are entering and egressing the Order Limits. The precise location and details will be agreed with the highway authority in due course.

3.22. Location AA

3.22.1. Access AA proposes a new access on the northern side of Crook O'Moor Road, as shown at Figure 3.28 – Proposed Access Arrangements – Access AA. The access

will be located opposite to Access AB. Access AA will have a six metre wide carriageway with 10 metre junction radii on both sides. An 18.9 metre taper will be provided on the western side and a 16.7m taper on the eastern side within the Order Limits. These tapers will facilitate 16.5m long HGVs entering exiting the access. A swept path assessment of a 16.5m long HGV has been undertaken confirming that this vehicle is able to enter and exit the access from all directions in a forward gear.

3.22.2. Figure 3.28 - Proposed Access Arrangements - Access AA also confirms that a visibility splay of 2.4 x 215 metres to the north and 2.4 x 182 metres to the south are shown to be achievable to the nearside kerbline. On site observations suggest that vehicles speeds in this location are much lower than the signed national (60mph) speed limit. However, temporary traffic measures will be implemented at the access, such as banksmen or temporary signals, in order to control the vehicle flow and speeds of Crook O'Moor Road when construction vehicles are entering and egressing the Order Limits. The precise location and details will be agreed with the highway authority in due course.

3.23. Location AB

- 3.23.1. Access AB proposes a new access on the southern side of Crook O'Moor Road, as shown at Figure 3.28 Proposed Access Arrangements Access AB which is located opposite Access AA. Access AB will have a six metre wide carriageway with 10 metre junction radii on both sides. A 16.5 metre taper will be provided on the western side and a 22.9m taper will be provided on the eastern side. These tapers will facilitate 16.5m long HGVs entering and exiting the access. A swept path assessment of a 16.5m HGV has also been undertaken confirming that this vehicle is able to enter and exit the access from all directions in a forward gear.
- 3.23.2. Figure 3.28 Proposed Access Arrangements Access AB also confirms that a visibility splay of 2.4 x 215 metres to the north and 2.4 x 196 metres to the south are shown to be achievable to the nearside kerbline. On site observations suggest that vehicles speeds in this location are much lower than the signed national (60mph) speed limit. However, temporary traffic measures will be implemented at the access, such as banksmen or temporary signals, in order to control the vehicle flow and speeds of Crook O'Moor Road when large construction vehicles are entering and egressing the Order Limits. The precise location and details will be agreed with the highway authority in due course.

3.24. Location AC

- 3.24.1. Access AC is an internal crossing over Marsh Road to connect two panel areas within Land Parcel B, as shown at Figure 3.29 Proposed Access Arrangements Access AC. A swept path assessment for a tractor and trailer has been undertaken confirming that a vehicle of this size is able to perform the required manoeuvre.
- 3.24.2. Appropriate mitigation will be implemented, anticipated at this stage to consist of banksmen, to control vehicles as they cross Marsh Road.

3.25. Location AD

- 3.25.1. Access AD is an internal crossing within Land Area B between the panel areas either side of an unnamed road, as shown at **Figure 3.30 Proposed Access Arrangements Access AD.** A swept path assessment for a 16.5 metre HGV has been undertaken confirming that a vehicle of this size is able to perform the required manoeuvre.
- 3.25.2. A potential crossing in the form of a culvert may be required to facilitate crossing between the two panel areas. The details will be agreed with the highway authority in due course.

3.26. Location AE

3.26.1. Access AE is an internal crossing between the panel areas within Land Area D which are separated by a ditch, as shown at Figure 3.31 - Proposed Access Arrangements - Access AE. A swept path assessment for a 16.5 metre long HGV has been undertaken confirming that a vehicle of this size is able to perform the required manoeuvre.

3.27. Location AH

- 3.27.1. Access AH proposes a new access to the south of the A18 as shown at Figure 3.34 Proposed Access Arrangements Access AH. A swept path assessment for a tractor and trailer has been undertaken confirming that a vehicle of this size is able to turn into and out of the access to and from the east from/to a construction compound that will be located in the adjacent panel area.
- 3.27.2. **Figure 3.34 Proposed Access Arrangements Access AH** also confirms that a visibility splay of 2.4 x 215 metres is shown to be achievable to the nearside kerbline in both directions, commensurate with DMRB for the national (60mph)

speed limit. The access point is therefore considered suitable to accommodate construction traffic associated with the laying of the cable route for the solar farm.

3.28. Location Ai

- 3.28.1. Access Ai proposes a new access to the south of the A18, around 390 metres west of Jaque's Bank, as shown at **Figure 3.35- Proposed Access Arrangements Access Ai.** A swept path assessment for a 16.5m long HGV has been undertaken confirming that a vehicle of this size is able to turn into and out of the access to and from the west, in accordance with the construction traffic routes set out in **Chapter 4** of this document.
- 3.28.2. **Figure 3.35 Proposed Access Arrangements Access Ai** also confirms that a visibility splay of 2.4 x 215 metres is shown to be achievable to the nearside kerbline in both directions, commensurate with DMRB guidance [Ref-1] for the national (60mph) speed limit.
- 3.28.3. The location of the access is generally open and limited vegetation will need to be removed to accommodate it. An existing layby on the eastbound carriageway will be temporarily closed, if considered necessary by the highway authority. The precise details will be agreed with the highway authority in due course.

3.29. Location AJ

3.29.1. Access AJ is an existing agricultural access from Green Bank as shown at **Figure 3.36 - Proposed Access Arrangements - Access AJ**. A swept path assessment for a 4x4 vehicle and a trailer has been undertaken confirming that a vehicle of this size is able to perform the required manoeuvre. This access point is required as an access to the cable run to the south of Land Parcel C.

3.30. Location AK

- 3.30.1. Access AK is an existing agricultural access from the A161 as shown at Figure 3.37 Proposed Access Arrangements Access AK. This will serve as the access to land area M15(E) for retained agricultural purposes and mitigation. A swept path assessment for a tractor and trailer has been undertaken confirming that a vehicle of this size is able to perform the required manoeuvres.
- 3.30.2. **Figure 3.33 Proposed Access Arrangements Access AG** also confirms that visibility splays of 2.4 x 160 metres can be achieved to the nearside kerbline in both directions, commensurate with the 50mph speed limit in place on the A161 within the vicinity of the access.

3.31. Proposed Operational Access

- 3.31.1. Once construction has finished, all construction accesses are expected to be retained for operational purposes.
- 3.31.2. Once operational, it is anticipated that there could be around one visit to the Scheme per month on average associated with equipment maintenance, ground maintenance, security checks etc. This would typically be made by light van or 4x4 type vehicles.
- 3.31.3. Whilst the contractor's compounds will have been removed, space for parking and turning will remain within the Scheme.

Internal Roads

- 3.31.4. The extent of the access tracks within the Scheme is shown on the indicative layout included as part of the wider submission.
- 3.31.5. The Scheme will feature permanent four metre wide access tracks throughout allowing for the movement of construction vehicles. These access tracks will be completed during the initial phase of the construction process.
- 3.31.6. The access tracks will be made of stone on top of permeable matting to protect and support the ground, enabling it to bear the weight of the plant and HGVs.
- 3.31.7. Existing ditch crossings will be utilised within the Scheme, where appropriate.

4 Construction Traffic Routing

- 4.1.1. The majority of components required to construct the Scheme are likely to be shipped in 40ft containers which are typically carried to the site on 16.5m long articulated HGVs. Excluding any abnormal indivisible loads (AILs), this is the largest vehicle which will access the Scheme.
- 4.1.2. The designated routes for construction traffic accessing the Scheme to the Land Parcels are shown at **Figure 4.1** of this document and summarised below. The designated construction traffic routes will be provided to drivers by the Site Manager(s) in advance of departing for each respective Land Parcel.
- 4.1.3. These routes will be followed unless otherwise agreed with the relevant highway authority, or in an event outside the Applicant's control which means an alternative route needs to be followed (e.g. an unexpected road closure/diversion).

4.2. Land Parcel A

- 4.2.1. Accesses A and B serve Land Parcel A. Access C provides access to land required for bird mitigation within Land Parcel A. The arrival route vehicles will take is as follows:
 - Exit the M18 motorway at Junction 6 turning north onto Selby Road.
 - Turn right onto North Common Road following it along before turning right onto Marshland Road.
 - Follow Marshland Road south and then turn left onto Coulman Street.
 - Follow Coulman Street south before turning left onto Moor Edges Road
 - For Access A, turn left onto the Private Road leading into Causeway Farm and into the Scheme;
 - For Access B, continue on Moor Edges Road for 850 metres before turning left in to the Scheme; and
 - For Access C, continue onto High Bridge Road before turning left in to the site before reaching Maud's Bridge.

4.3. Land Parcel B

- 4.3.1. Accesses S, AA, AB and AC serve Land Parcel B. The arrival route vehicles will take is as follows:
 - Exit the M180 at Junction 2 onto the A161 and follow it northwards towards Crowle.
 - Turn left onto Godnow Road, following the road southwest.
 - Turn right onto Windsor Road and continue north to the junction with Marsh Road and Cross street; and
 - Turn left onto Marsh Road, continuing west until turning into each access point.
- 4.3.2. Swept path assessment of junctions along the route the A161 (Godnow Road, Windsor Road and Marsh Road) from are included at **Appendix B**.

4.4. Land Parcel C

- 4.4.1. Access D, E, Y and Ai serve Land Parcel C. The arrival route vehicles will take to reach these access points is as follows:
 - Construction traffic will exit the M18O at Junction 1 onto the Tudworth Roundabout turning east onto the A18; and
 - Continue east along the A18 before either accessing the land parcel required directly from the A18 (Access Ai), or one of the minor roads (Green Bank (Access D and E) or Jaque's Bank (Access Y) from the A18.

4.5. Land Parcel D

- 4.5.1. Land Parcel D is bisected by the M18O. The arrival route vehicles routing to parcels to the north of the M18O (Access F, M and Z) will take to reach their destination is as follows:
 - Construction traffic will exit the M18O at Junction 1 onto the Tudworth Roundabout turning east onto the A18
 - Continue east along the A18 before either accessing the land parcel required directly from the A18 (Access F and M), or Crow Tree Bank (Access Z).
- 4.5.2. The arrival route vehicles routing to parcels to the south of the M18O using accesses H, i, J, K and W will take to reach their destination are as follows:
 - Vehicles will exit the M18O at Junction 1 onto the Tudworth roundabout turning south onto the A18.
 - Upon reaching the Sandtoft Road junction turn left following it along as it becomes Low Levels Bank; and
 - Continue following Low Levels Bank east into the access points either side of the Low Levels Bank carriageway.
- 4.5.3. Swept path assessment of the A18 Tudworth Road/ Sandtoft Road junction is included at **Appendix C**.

4.6. Land Parcel E

4.6.1. Accesses P, R, Q, X and Ai serve Land Parcel E. The arrival route vehicles will take is as follows:

- Exit the M180 at Junction 2 onto the A161 following it north: then:
- For Access P, turn left onto the unnamed road that runs parallel to the A18 following it west before routing west on High Levels Bank, from which Access P is served;
- For Access Q, turn left onto the unnamed road that runs parallel to the A18 following it west before routing south on High Levels Bank, from which Access Q is served; and
- For Access R, turn left onto the unnamed road that runs parallel to the A18 following it west, form which Access R is served.
- For Access AK, continue north along the A161 for circa one kilometre, with Access AK on the western side of the road

4.7. Construction Route Mitigation

- 4.7.1. The arrival and departure of HGVs at the Scheme will be strictly managed by the Site Manager(s). Drivers will adhere to a delivery schedule and will be required to call ahead to ensure that any emerging HGVs can be held within the construction compounds. No HGVs will be permitted to wait on the public highway and background traffic will always be given priority. This will be effected by banksmen and the Site Manager(s).
- 4.7.2. Advisory signs will be provided along the construction traffic route, with the exact positions to be agreed with CDC and NLC officers in due course. The signs will be compliant with Chapter 8 of the Traffic Signs Manual [Ref-2], where applicable, and will be in place for the duration of the construction phase at the site.
- 4.7.3. Drivers will be informed of the required route to each access point prior to arriving at and / or departing from the Scheme. They will also be advised not to use Sat-Navs to reach the Scheme to avoid using inappropriate roads. A temporary signage scheme to direct drivers to each of the Land Parcels will be put in place from the strategic road network for the duration of the construction works.
- 4.7.4. There are no signed height restrictions on the routes, and no road closures will be required in order to facilitate access. However, temporary traffic management measures are proposed at each individual access point to assist drivers entering and leaving the Scheme.

4.7.5. Specifically in relation to Land Parcel B and the proposed construction traffic route, Crowle Primary School is located on Windsor Road around 95 metres south of Marsh Road. As such, any construction traffic movements through Crowle (a breakdown of which is provided in **ES Chapter 12 Transport and Access [Document Reference 6.1.12]** as link 19 of the ES) would be strictly managed and would be timed to avoid the peak hours on the highway network and the busiest times of the school day.

5 Vehicle Trip Attraction

5.1. Construction Phase

- 5.1.1. The construction phase includes the preparation of the land, the temporary access roads, erection of security fencing, assembly and erection of the PV strings, installation of the inverters/transformers/battery units and grid connection, including cable connections between the panel areas and the intermediate substations.
- 5.1.2. The Applicant has confirmed the following construction periods for each of the Land Parcels for assessment purposes:
 - Land Parcel A 12 months (with peak construction over a four month period).
 - Land Parcel B 9 months (with peak construction over a two month period).
 - Land Parcel C 12 months (with peak construction over a three month period).
 - Land Parcel D 9 months (with peak construction over a three month period).
 - Land Parcel E 12 months (with peak construction over a three month period).
- 5.1.3. The Applicant has also confirmed for assessment purposes that they are likely to construct only two Land Parcels at any one time. The peak construction period in Transport and Access terms would comprise the construction of Land Parcel C and Land Parcel E simultaneously, as these Land Parcel share sections of the proposed construction traffic route. However, in order to provide a robust assessment it has been assumed that the entire Scheme could come forward at the same time. This ensures that all potentially impacted links are considered and provides a robust assessment of the highway network.
- 5.1.4. HGV deliveries will be made to construction compounds located across the Land Parcels. The construction compounds will accommodate deliveries by HGVs where

they will decant equipment and materials. Some Land Parcels will require the materials to be transported from other Parcels via smaller vehicles (i.e. tractor and trailer). Where this is required, it has been assumed that a total of three tractor and trailers are required for every HGV delivery.

- 5.1.5. The construction of the Scheme will require Abnormal Indivisible Loads (AIL) for the transformer and substation deliveries. The deliveries will be planned with an AIL route assessment and will be escorted and managed along the route from the port of entry into the UK and the Order Limits. Any impacts will be minimised, and the arrangements will be secured through an AIL assessment in due course in conjunction with CDC, NLC and the Police.
- 5.1.6. There will also be a small number of construction movements associated with smaller vehicles such as the collection of skips for waste management, although these will be infrequent, and the transport of construction workers and subcontractors.
- 5.1.7. The Applicant has confirmed that a maximum of up to 377 construction workers would be on Land Area C and E at any one time during the peak construction period. This is based on an assumption of 4.94 workers per acre. However, the assessment has been based on the construction of the Scheme occurring simultaneously and therefore a higher number of staff trips has been assessed with up to 880 staff across the entire Scheme.
- 5.1.8. The Applicant expects that 75% of the construction workers will travel to site via 15 seater minibus, whilst the other 25% will arrive via private vehicle with an average of three workers per car. This equates to 17 minibuses and 41 private cars per day (up to 116 two-way vehicle movements per day at peak times of construction). The majority of staff will travel from Doncaster, North Lincolnshire and East Riding of Yorkshire areas. Further details on the location of where staff will travel from is set out in ES Chapter 11 Socio Economic [Document Reference 6.2.11].
- 5.1.9. As set out above, construction compounds will be provided across the Land Parcels. The number of deliveries will therefore be split between each Land Parcel and their respective compounds. The Applicant has confirmed for assessment purposes that each Land Parcel could be associated with the following daily vehicle movements, based upon the construction periods set out in paragraph 5.2:
 - Land Parcel A 90 two-way AADT movements per day (including 42 HGV AADT movements).

- Land Parcel B 11 two-way AADT movements per day (including six HGV AADT movements).
- Land Parcel C 42 two-way AADT movements per day (including 20 HGV AADT movements).
- Land Parcel D 38 two-way AADT movements per day (including 18 HGV AADT movements).
- Land Parcel E 54 two-way AADT movements per day (including 26 HGV AADT movements).

5.2. Summary

5.2.1. The level of traffic during the temporary construction phase is not considered to be material and it is considered that this will not have a detrimental impact on the safety or operation of the local or strategic highway network.

6 Proposed Mitigation Measures

- 6.1.1. The appointed contractor(s) will introduce measures to minimise the impact on the local road network resulting from construction activities. These will be managed by the Project Manager and the Site Manager(s).
- 6.1.2. The Site Manager(s) will assume responsibility for the operation of the Scheme. The details of the Site Manager(s) will be provided to the highway authority at CDC and NLC in advance of any works being carried out.

6.2. Construction Compounds

- 6.2.1. Construction compounds will be located across the Order Limits within each Land Parcel, as shown in **ES Figure 2.1 Indicative Construction Layout Plan** [Document Reference 6.4.2.1] available as part of the wider submission. The construction compounds will be on flat ground. They will be surfaced with aggregate/ stone to support weight bearing plant and equipment. The construction compounds will be removed once the construction phase is complete.
- 6.2.2. All of the construction compounds will be secured by mesh fencing and will include:
 - reception area.
 - office and welfare units.

- security cabin.
- turning area for delivery vehicles.
- laydown area.
- skip area.
- storage containers.
- parking area; and
- vehicle wheel wash area.
- 6.2.3. Parking for cars and minibuses will be provided within each of the compounds. Parking will therefore be contained within the Scheme and no unnecessary parking will occur on the local highway network. This will be monitored and managed by the Site Manager(s).
- 6.2.4. No parking by contractor(s), visitors or delivery vehicles will be permitted on any roads in the vicinity of the Scheme or the access tracks from the public highway leading to the construction compounds during the construction phase. Visitors will be advised of the parking arrangements in advance of travelling to the Scheme. The Site Manager(s) will monitor that parking is taking place in the designated area within the compounds.
- 6.2.5. The compounds will also include areas for the storage of plant and equipment. The material storage units will be used to contain materials, products, parts, crates, packing materials and waste for the duration of the construction phase.
- 6.2.6. Staff welfare facilities including toilets, and a canteen will be provided at each compound. An office block will be located at the entrance of the compounds for signing in and out and other administrative activities.
- 6.2.7. Loading and unloading of construction material and plant will take place within the construction compounds. A fenced and secured storage area will also be provided. The compounds will be large enough for heavy goods vehicles (HGVs) and a tractor and trailer to turn and exit the compound in a forward gear.
- 6.2.8. The arrival and departure of HGVs at the Scheme will be strictly managed by the Site Manager(s). Drivers will be required to adhere to a delivery schedule and will be required to call ahead to ensure that any emerging HGVs can be held within the

- construction compounds. No HGVs will be permitted to wait on the public highway. This will be communicated to drivers via the call-ahead system.
- 6.2.9. Wheel washing may be required until the internal access tracks are completed. A hose / pressure washer or dry-wheel wash will be provided at the exit of the construction compounds to ensure that vehicle's wheels are clear of mud and debris before exiting on to the local highway network.

6.3. Management of HGVs

- 6.3.1. A Delivery Management System will be put in place to plan deliveries entering all the site accesses and this will be controlled by the Site Manager(s) and banksmen.
- 6.3.2. The arrival and departure of HGVs at the site access points will be strictly managed by the Site Manager(s). Drivers and banksmen and will adhere to a delivery schedule and will be required to call ahead to ensure that any emerging HGVs can be held, if necessary, within the construction compound. No HGVs will be permitted to wait on the public highway. This will be communicated by the Site Manager(s) via the call ahead system. Should more than one HGV arrive at the site at the same time, then the construction compounds are large enough to be able to accommodate this.
- 6.3.3. National Highways have requested that delivery vehicles are limited to outside of the AM and PM peak hours of the Strategic Road Network (SRN) (i.e. avoiding 0800-0900 and 1700-1800 on the SRN).

6.4. Operation and Management of Banksmen

- 6.4.1. Trained banksmen will be deployed to manage inbound and outbound HGV movements associated with the Scheme.
- 6.4.2. Banksmen will be sited at all access points that are in use during the construction phase to manage the safe access and egress of all construction traffic.
- 6.4.3. They will wear high-visibility clothing at all times and will communicate to HGV drivers and colleagues via radio.
- 6.4.4. Banksmen will also be located within the construction compounds to assist turning manoeuvres by the largest vehicles, where required, and at PRoW crossing routes within the Scheme to ensure that users of the PRoW are given priority at all times.
- 6.4.5. The contact details of the contractor(s) and those of the highway department at NLC and CDC will be exchanged before commencement of the works at the Scheme.

6.5. Temporary Signage

- 6.5.1. Temporary warning signage will be placed in strategic locations to warn road users of the ongoing construction.
- 6.5.2. The signage will be provided in line with The Traffic Signs Manual: Chapter 8 (2020) [Ref-2] and is proposed to include (subject to agreement with the Highway Authority):
 - Sign Ref: 2708 Red signage stating 'CAUTION CONSTRUCTION TRAFFIC TURNING' at the access and egress points; and
 - Sign Ref: 7305 'WORKS TRAFFIC' directional signage from the strategic road network.
- 6.5.3. During the construction phase, temporary signage in line with Diagram 7301 'WORKS TRAFFIC ONLY' of the Traffic Signs Regulations and General Directions 2016 (TSRGD) will be used to indicate that heavy construction vehicles are turning. Signage will be white text and red background 1050 x 750mm mounted in 'A' frame, as illustrated at **Appendix D.**

6.6. Public Rights of Way

- 6.6.1. Mitigation and management procedures will be put in place where the PRoWs cross through the Scheme. These measures will include:
 - When construction plant and machinery are accessing a relevant Land Parcel, a banksman will be employed to control both movements on the PRoW and HGV traffic. Banksmen will ensure that users of the PRoW always have priority.
 - Where possible fencing will be placed along the PRoW routes where they cross
 the Scheme with gated sections in the vicinity of the internal access tracks.
 Vehicles will only be permitted to cross the PRoW at designated crossing
 points. Only smaller vehicles will be required to cross the PRoW at the
 designated crossing points.
 - Signage will be erected at either end of the affected PRoWs in the vicinity of the Scheme boundary advising users of ongoing construction activities.
 Further signage will be positioned on the approach to either side of each crossing point for both construction traffic and PRoW users.

- 6.6.2. Temporary diversion of a sections of PRoWs Thorne 19 and CROW 21, which traverse the site, may be required during the construction period in order to separate and keep apart members of the public from the construction vehicles and machinery. If a PRoW needs to be closed temporarily during construction, an alternative path will be provided.
- 6.6.3. The temporary diversion will cease following construction of the relevant works. Temporary diversion of the footpath would also take place during decommissioning.

6.7. Traffic Management

- 6.7.1. Where required, suitable traffic management would be implemented to ensure safe operation and to reduce as far as reasonably practicable the impact of the cable route works on the local highway network.
- 6.7.2. The following traffic management measures could be implemented at the site access points and along the cable route where it affects the adopted highway, depending on the nature of the carriageway within which the works are taking place. The details of traffic management will be agreed with the relevant highway authority in advance of any works taking place in the highway.

Banksmen

6.7.3. Where required, banksmen will be sited at the site access points and at either end of cable run areas to control traffic associated with the Scheme on the highway. Banksmen will communicate between vehicles / site management via CB radio. This will ensure traffic is controlled in a 'one way only' fashion in the vicinity of construction areas.

Stop / Go Boards

- 6.7.4. On roads along the route where the speed limit does not exceed 60mph (and where adequate visibility and lighting is available), stop/go boards shall be used to manage the flow of traffic past the cable works. Use of Stop/Go boards would be restricted to daylight hours.
- 6.7.5. Where manually rotated signs are in use and the operatives are not in direct line of sight, then two-way radio communication between operators must be used.

Portable traffic signals

6.7.6. Two way and / or multi-phase traffic signals will be considered where Stop/Go and Give and Take methods cannot be implemented. The details of traffic management will be agreed with the relevant highway authority in advance of any works taking place in the highway.

Road Closure

- 6.7.7. Whilst this would be avoided, where possible, if it becomes necessary a Temporary Traffic Regulation Order (TTRO) could be applied for by the contractor(s) to close a road or part of a road along the construction route. Whilst this would be avoided, where possible, if it becomes necessary a road or part of a road along the construction route could be closed following the temporary traffic regulation procedure set out in the DCO.
- 6.7.8. Where required, pedestrian access to properties within the affected road/s will be maintained at all times.
- 6.7.9. Appropriate traffic control signage will be agreed and provided as part of any of the above traffic management measures, in line with the Traffic Signs Regulations and General Directions (TSRGD) 2016 [Ref-3] and Traffic Signs Manual Chapter 8 [Ref-2]. The exact signage will be designed by a suitably competent contractor.

6.8. Condition Survey

- 6.8.1. A pre-commencement walk-over Condition Survey on the local highway network will be carried out to assess the baseline condition of the adopted highway before relevant construction activities commence. The extents of the surveys will be determined in consultation with highway officers at NLC and DC in due course.
- 6.8.2. The survey will incorporate photographic records as appropriate. The survey will be undertaken in the presence of highway officers at NLC and CDC should they wish to be present, as required, and a date for this survey will be determined before relevant construction activities commence.
- 6.8.3. This would be followed by a further Condition Survey with a further photographic record covering the same extents as previously assessed at the end of the relevant construction activities, in order to identify and agree any remedial works reasonably attributable to construction activities. A date for this survey will be determined in consultation with the highway authority once construction of the Scheme is complete.

7 References

- Ref-1: Design Manual for Roads and Bridges CD109 Highway Link Design (March 2020)
- Ref-2: Department for Transport Traffic Signs Manual Chapter 8: Traffic Safety Measures and Signs for Road Works and Temporary Situations (2009)
- Ref-3: The Traffic Signs Regulations and General Directions (TSRGD) 2016.

8 Glossary

Table 9-1: Glossary for Transport and Access

| Terminology | Definition |
|-------------|--------------------------------------|
| AADT | Annual Average Daily Traffic - |
| AIL | Abnormal Indivisible Load |
| CDC | City of Doncaster Council |
| СТМР | Construction Traffic Management Plan |
| DCO | Development Consent Order |
| DMRB | Design Manual for Roads and Bridges |
| ES | Environmental Statement |
| HGV | Heavy Goods Vehicle |
| LEMP | Landscape Ecological Management Plan |
| Mph | Miles per hour |
| MWp | Megawatts peak |
| NLC | North Lincolnshire Council |

OUTLINE CONSTRUCTION TRAFFIC MANAGEMENT PLAN

| PRoW | Public Right of Way |
|------|------------------------|
| SRN | Strategic Road Network |

Figure 2.1 Indicative Access Strategy

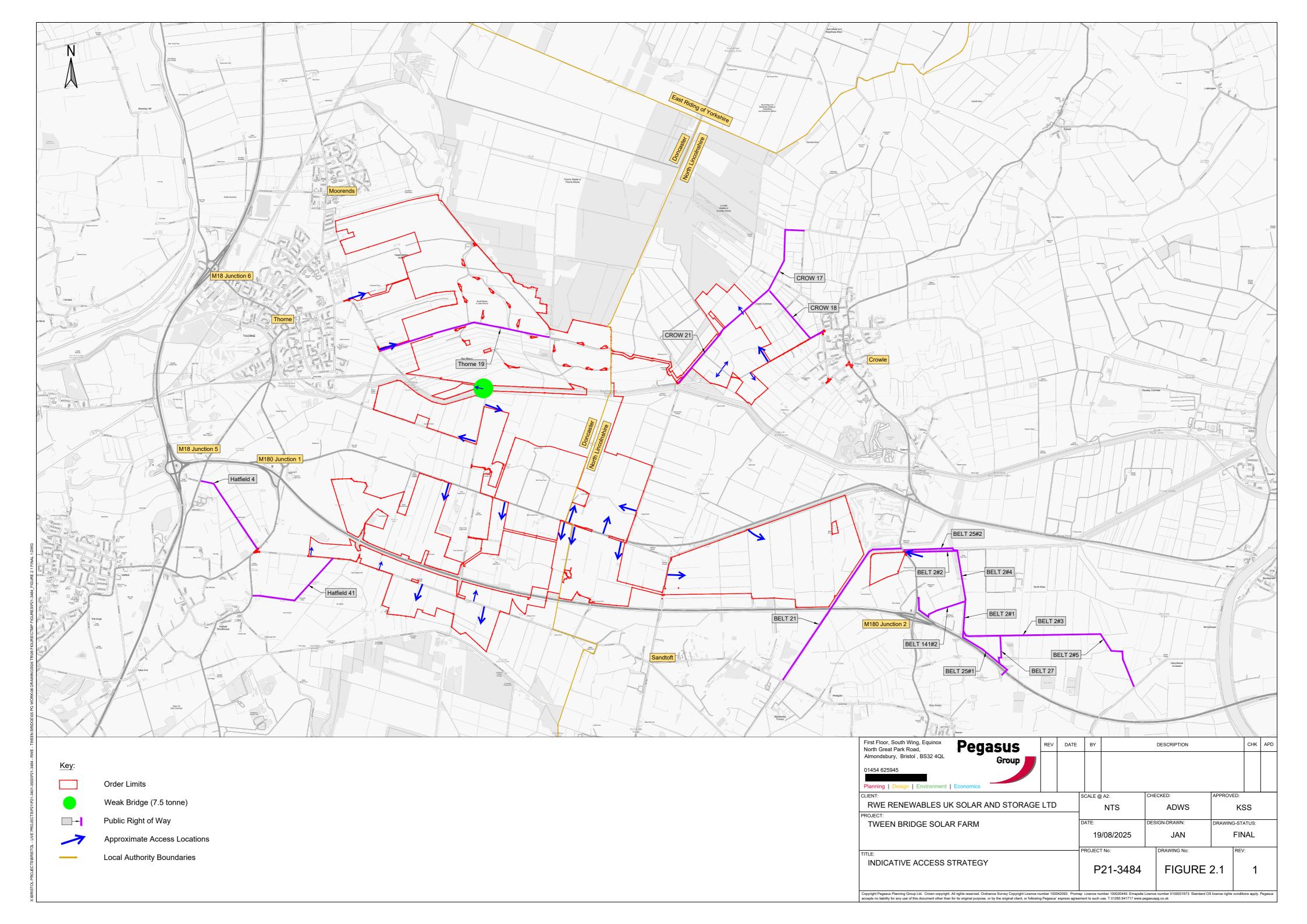


Figure 3.1 Proposed Access Arrangements Master

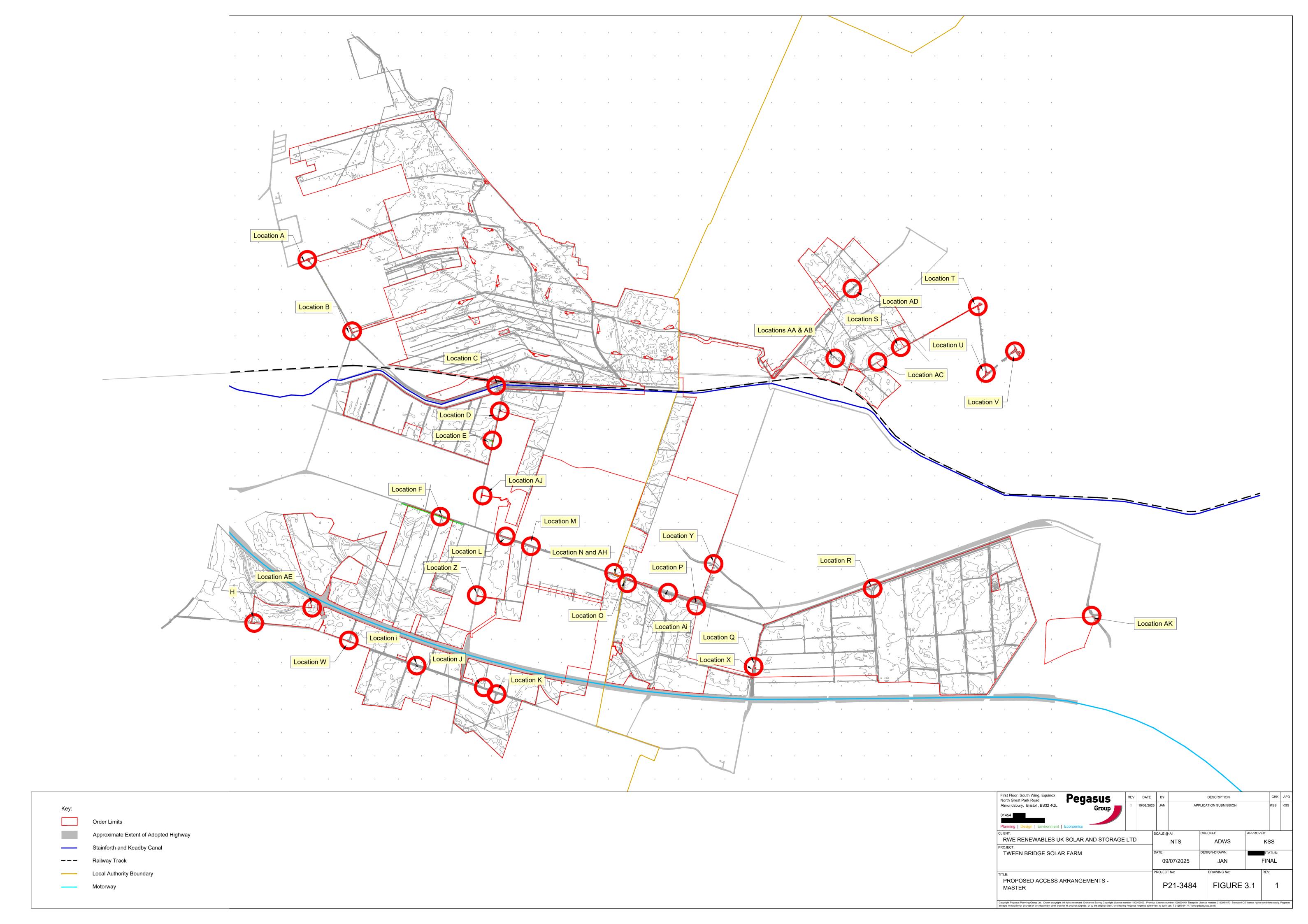


Figure 3.2 Proposed Access Arrangements – Access A

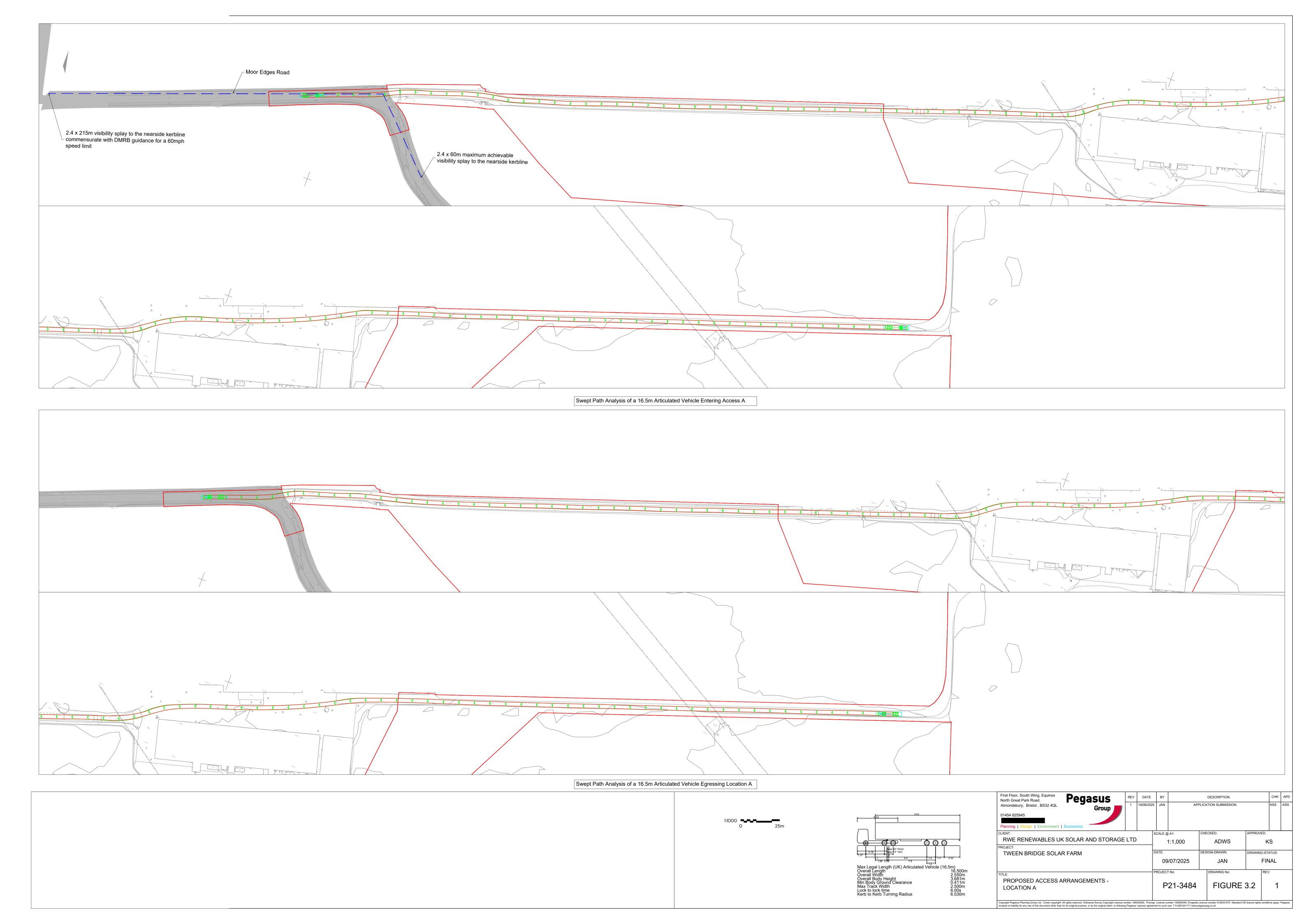


Figure 3.3 Proposed Access Arrangements – Access B

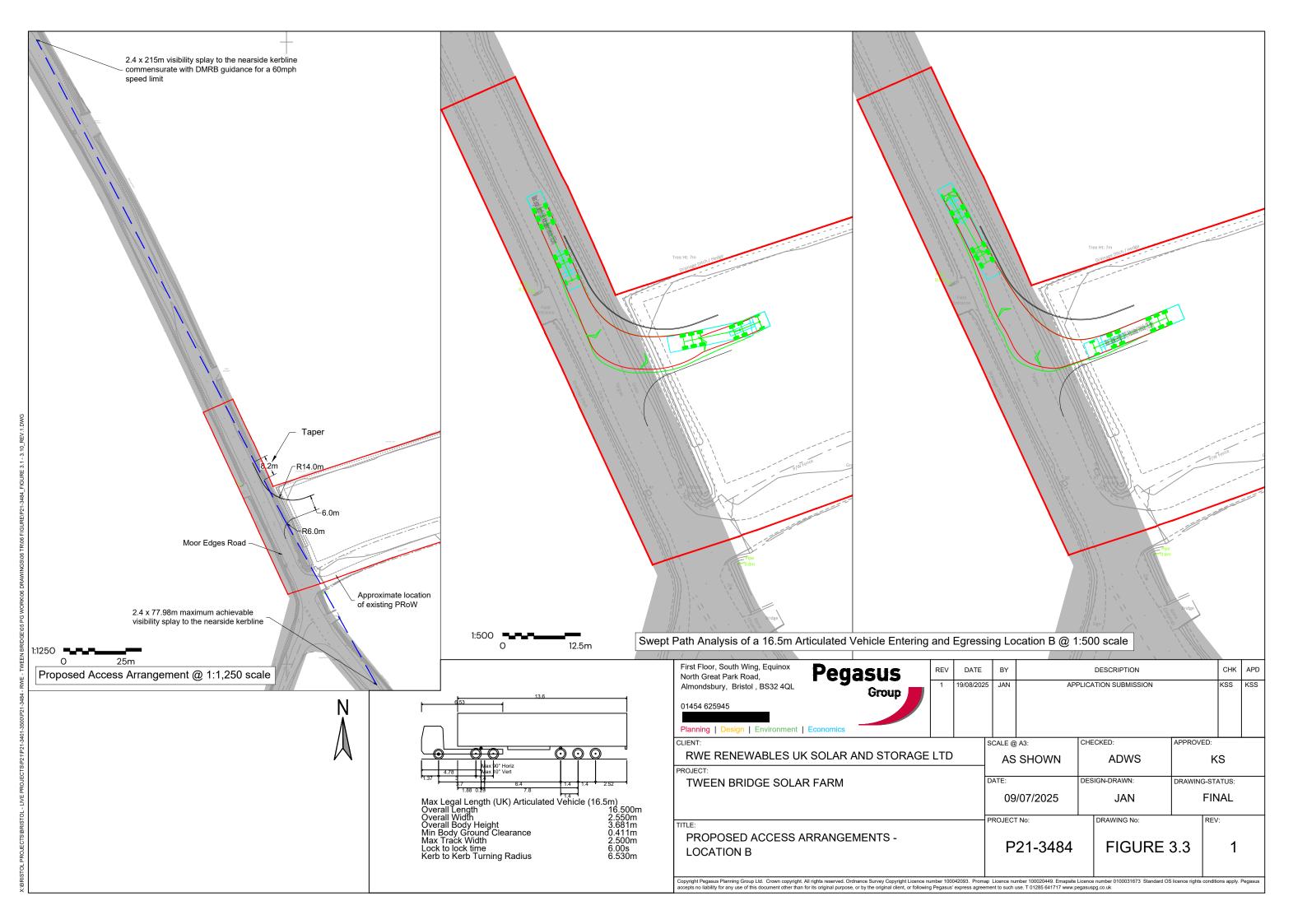


Figure 3.4 Proposed Access Arrangements – Access C

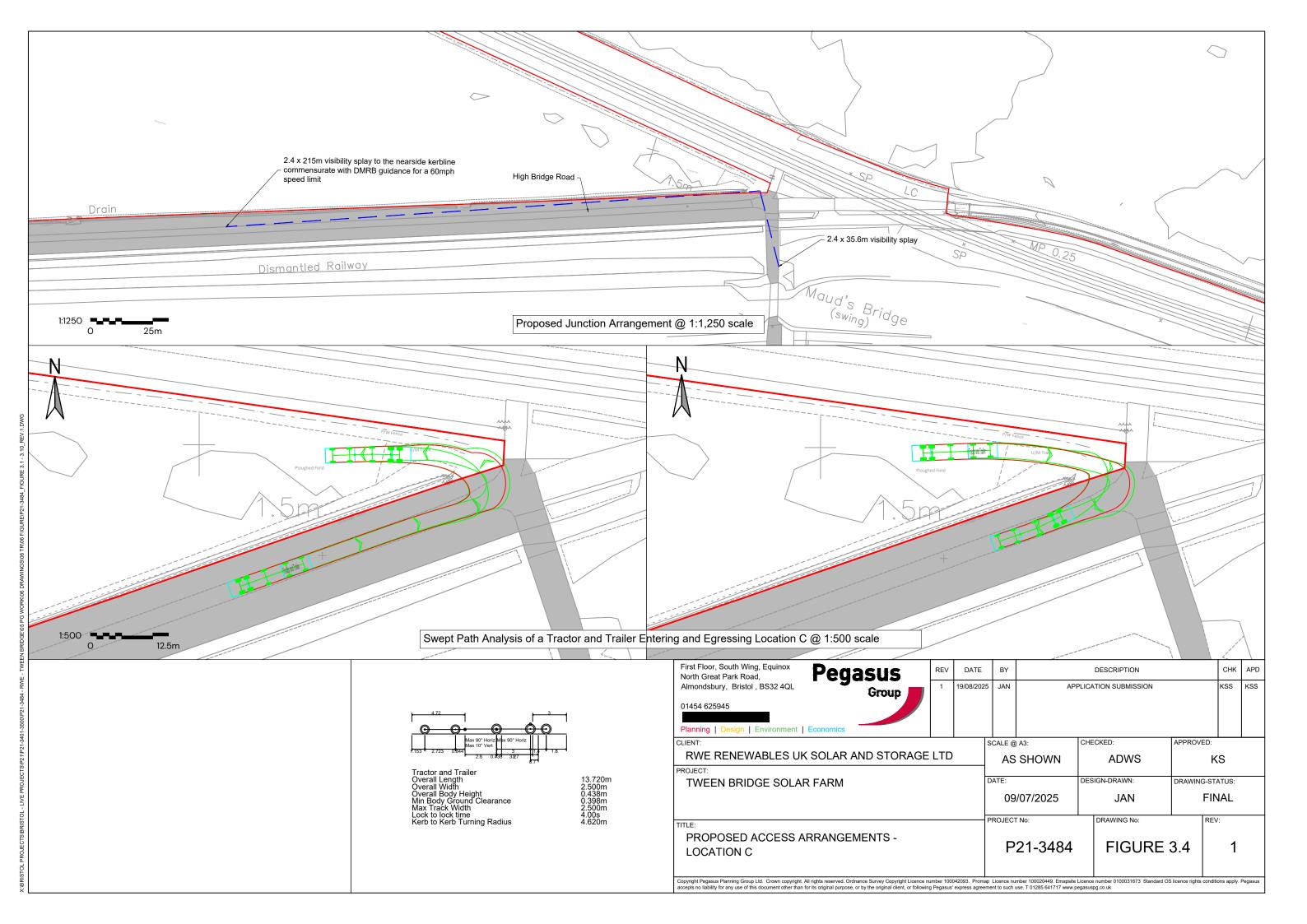


Figure 3.5 Proposed Access Arrangements – Access D

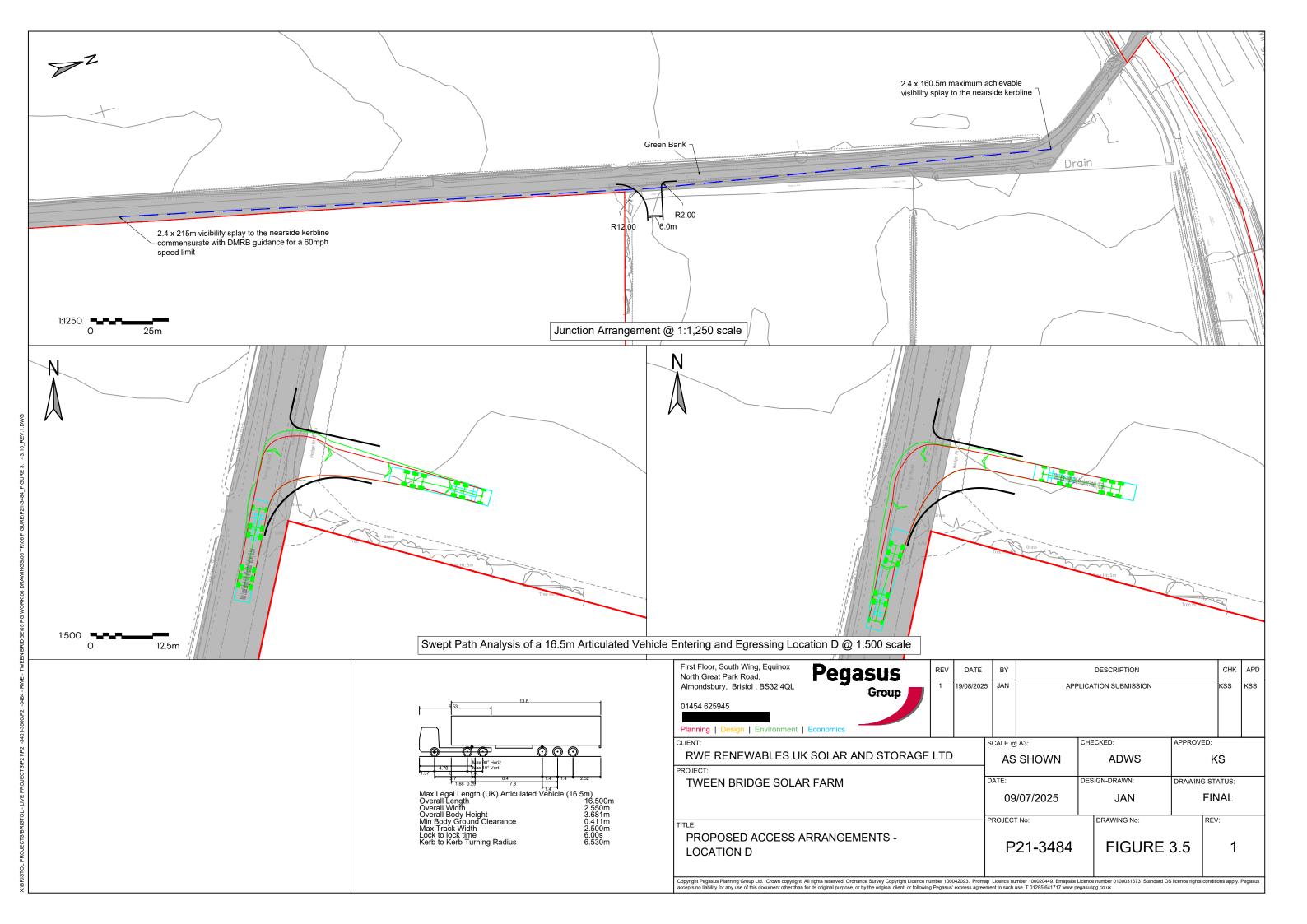


Figure 3.6 Proposed Access Arrangements – Access E

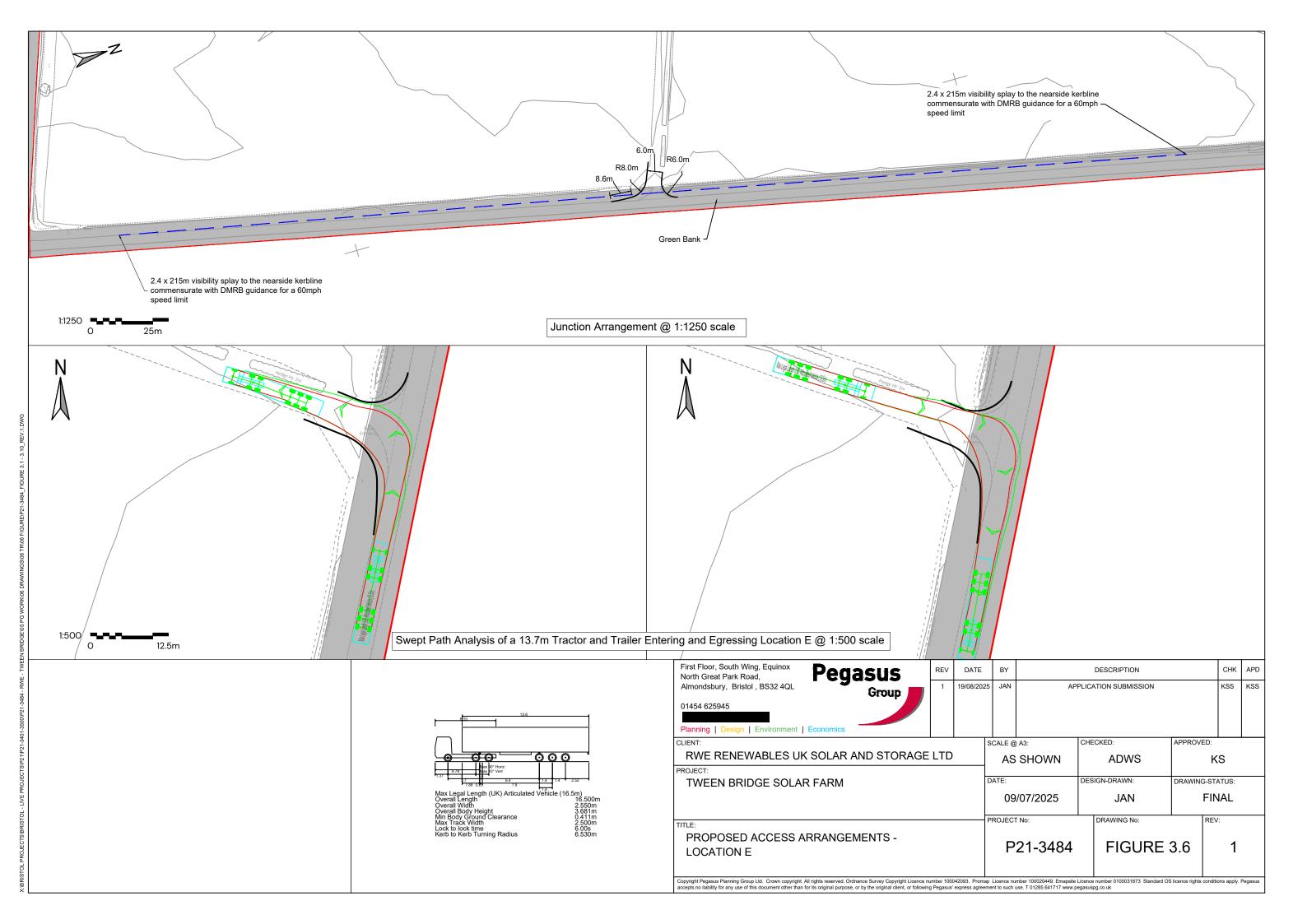


Figure 3.7 Proposed Access Arrangements – Access F

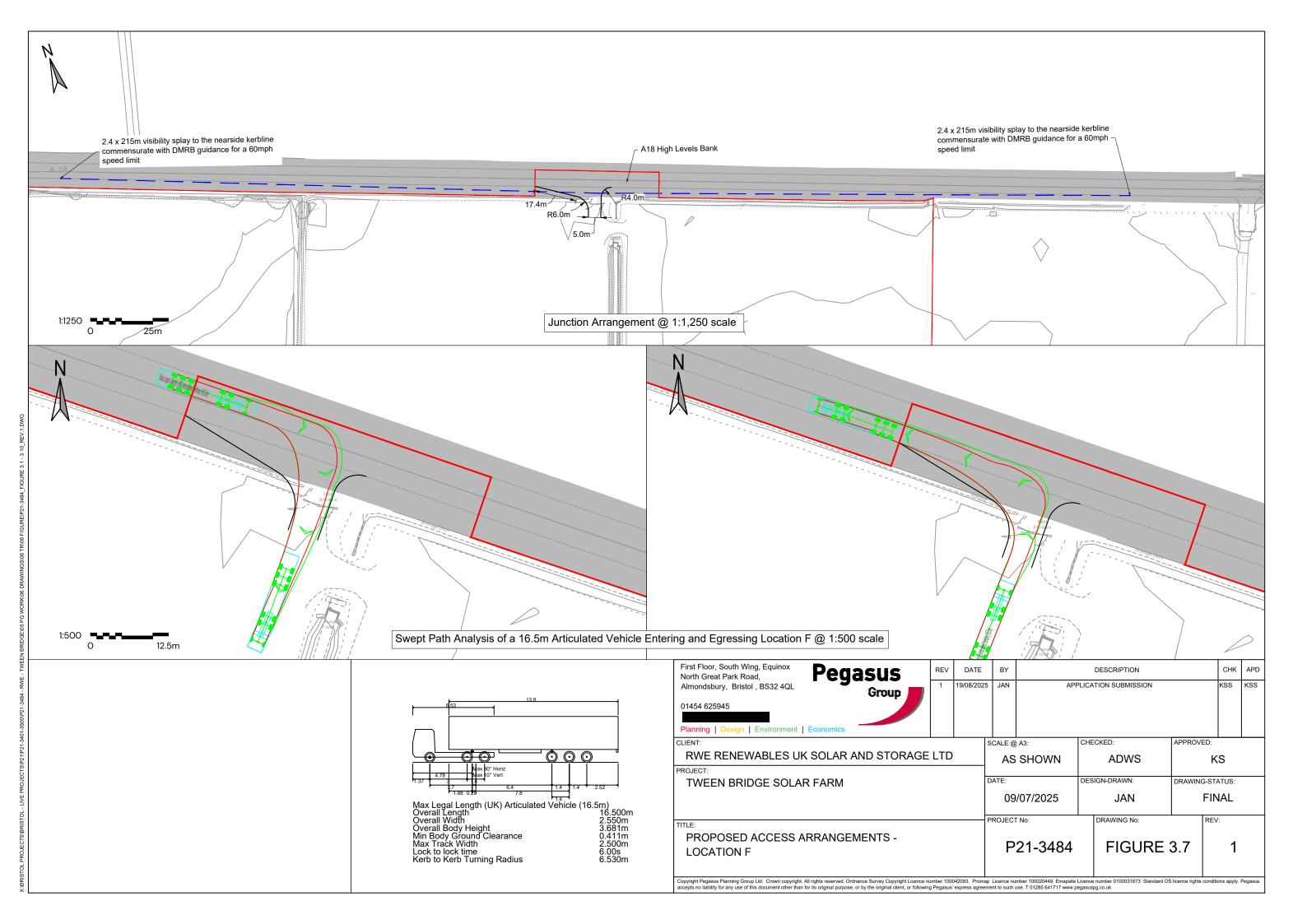


Figure 3.9 Proposed Access Arrangements – Access H

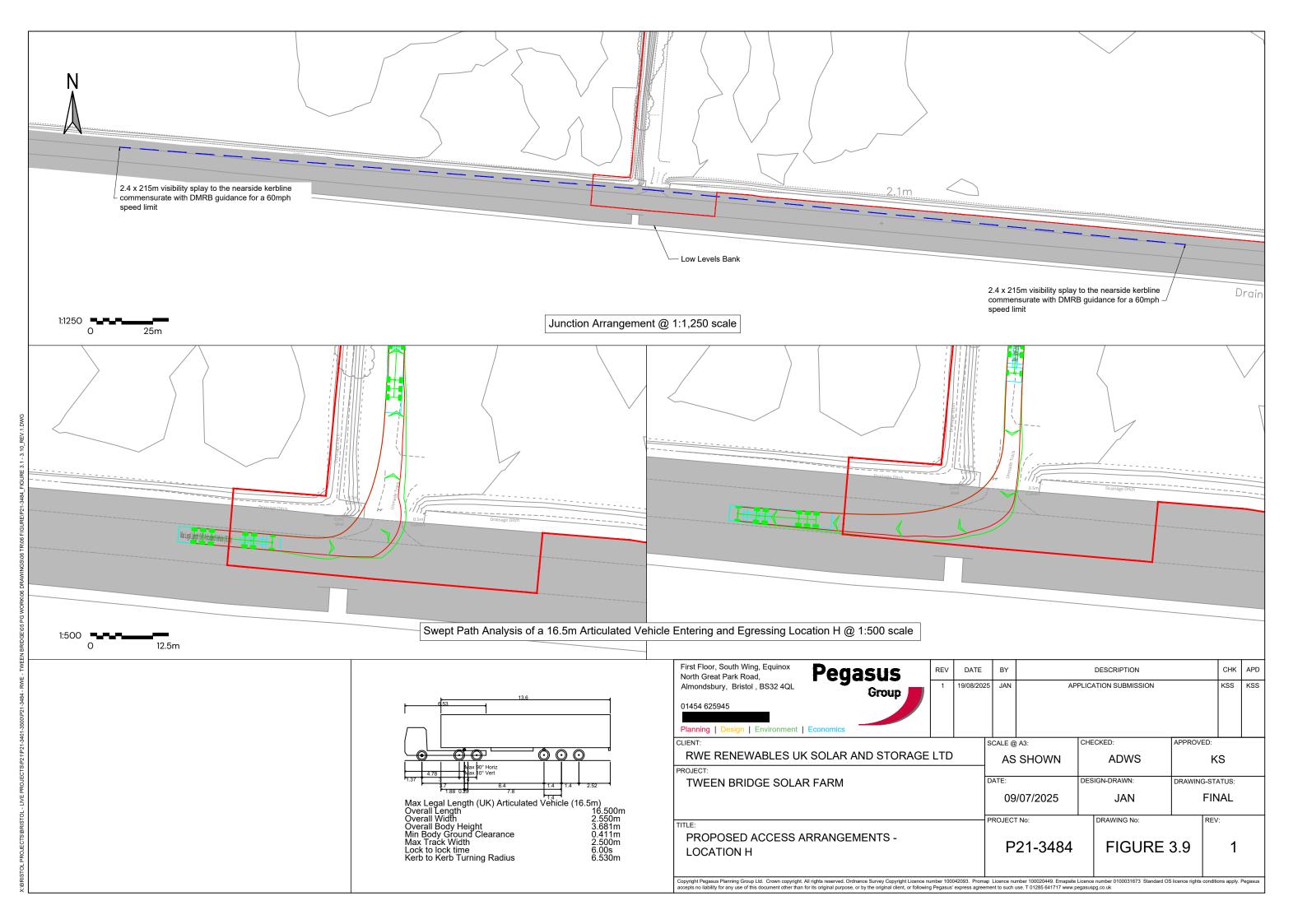


Figure 3.10 Proposed Access Arrangements – Access i

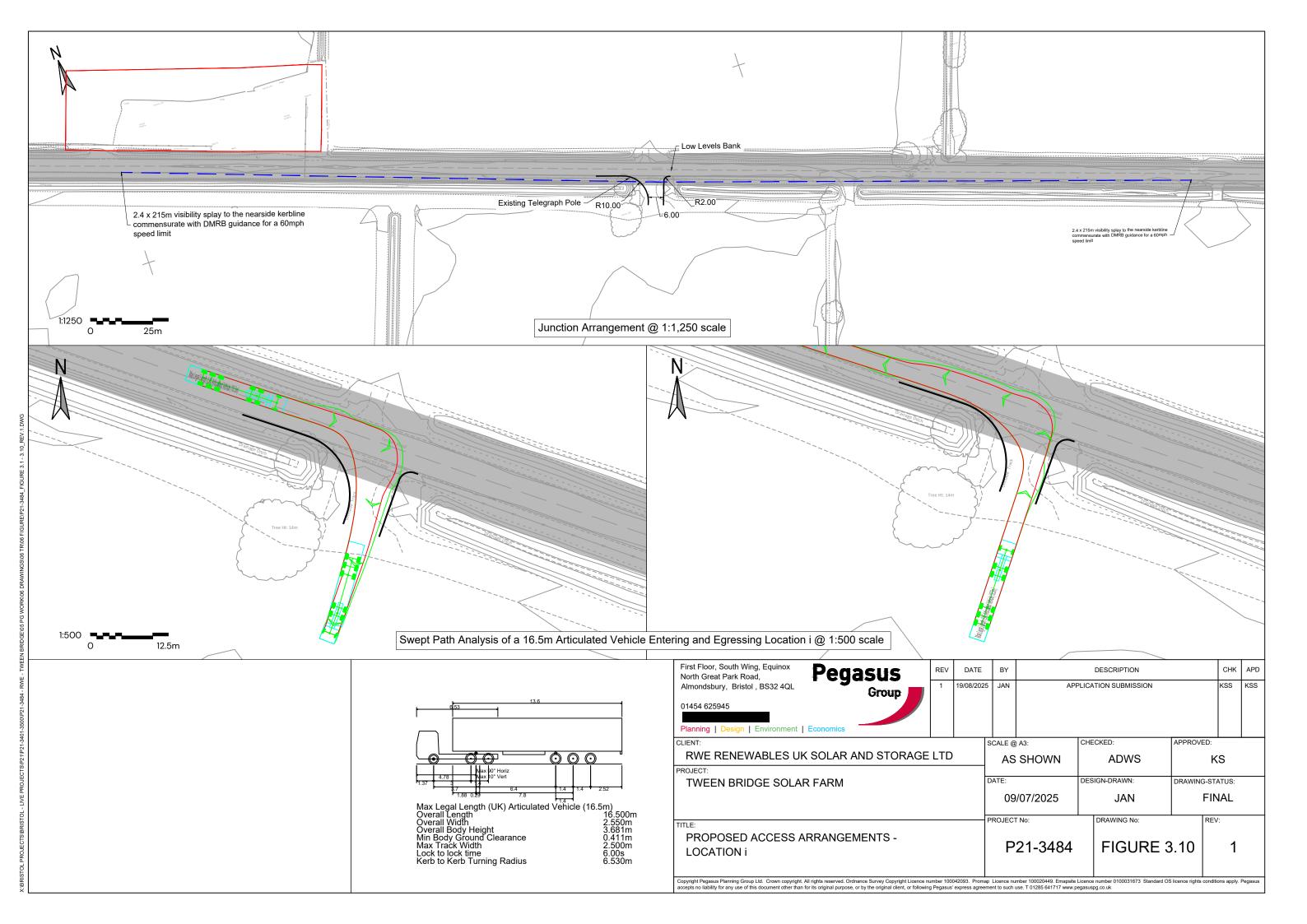


Figure 3.11 Proposed Access Arrangements – Access J

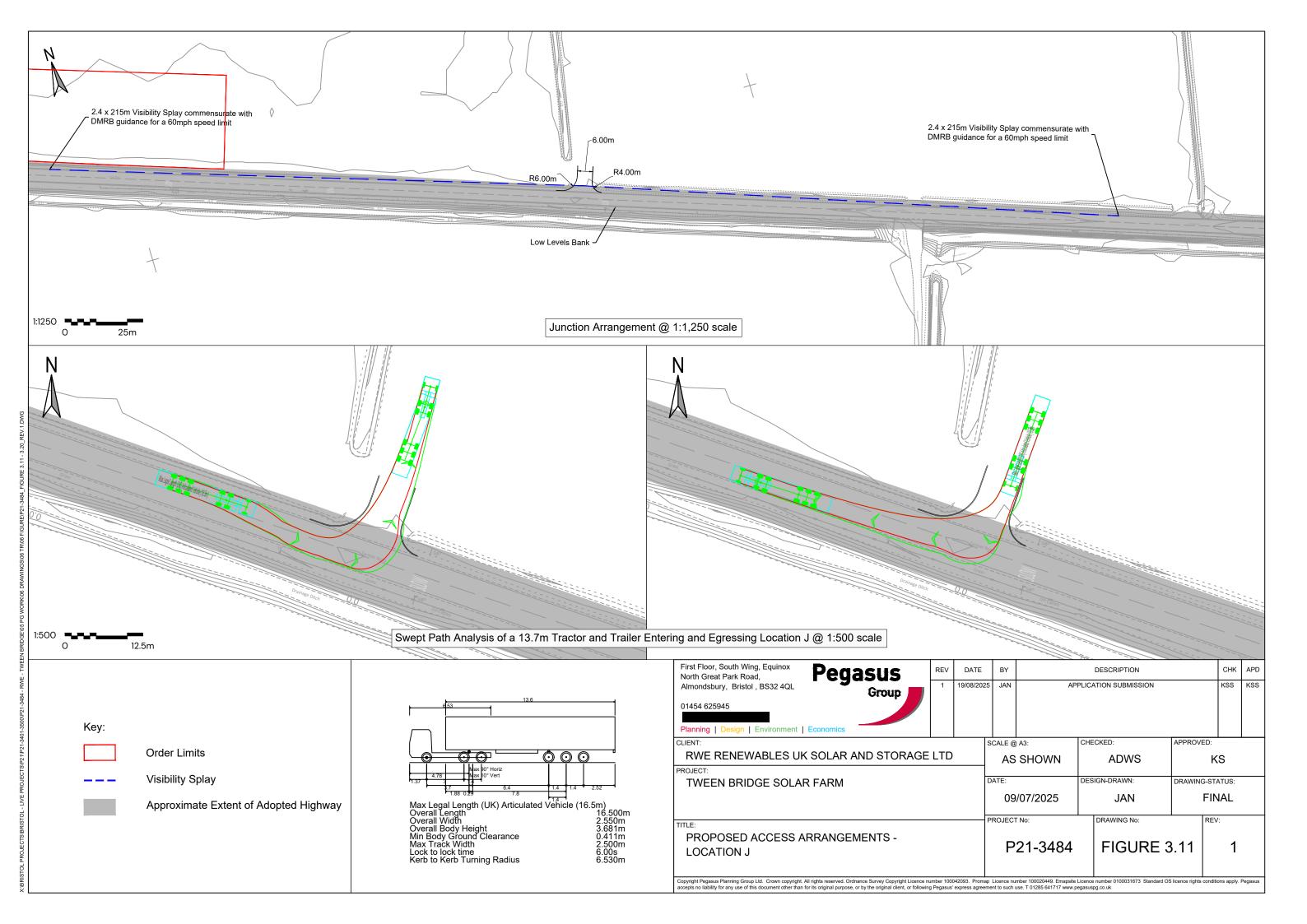


Figure 3.12 Proposed Access Arrangements - Access K

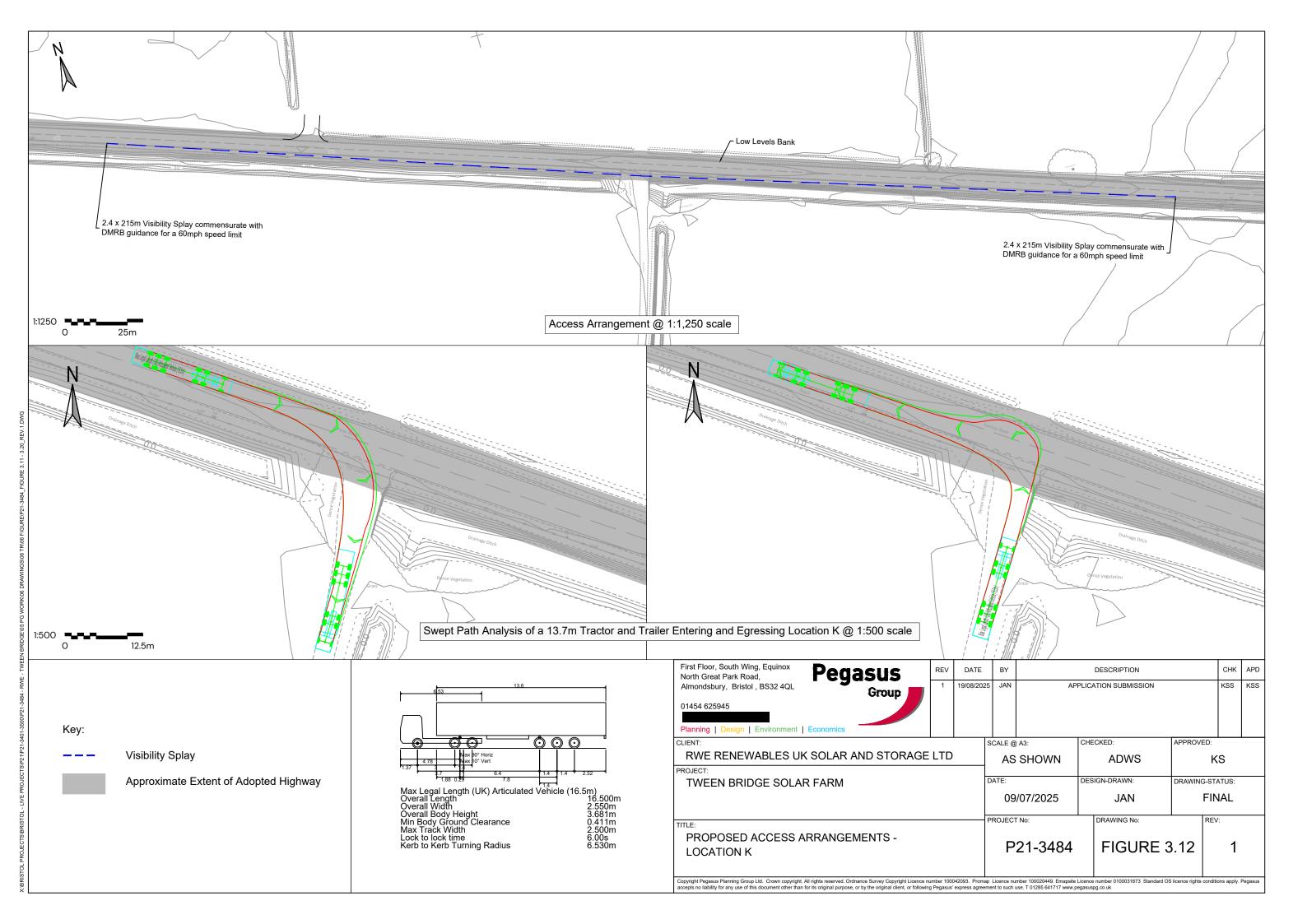


Figure 3.14 Proposed Access Arrangements – Access M

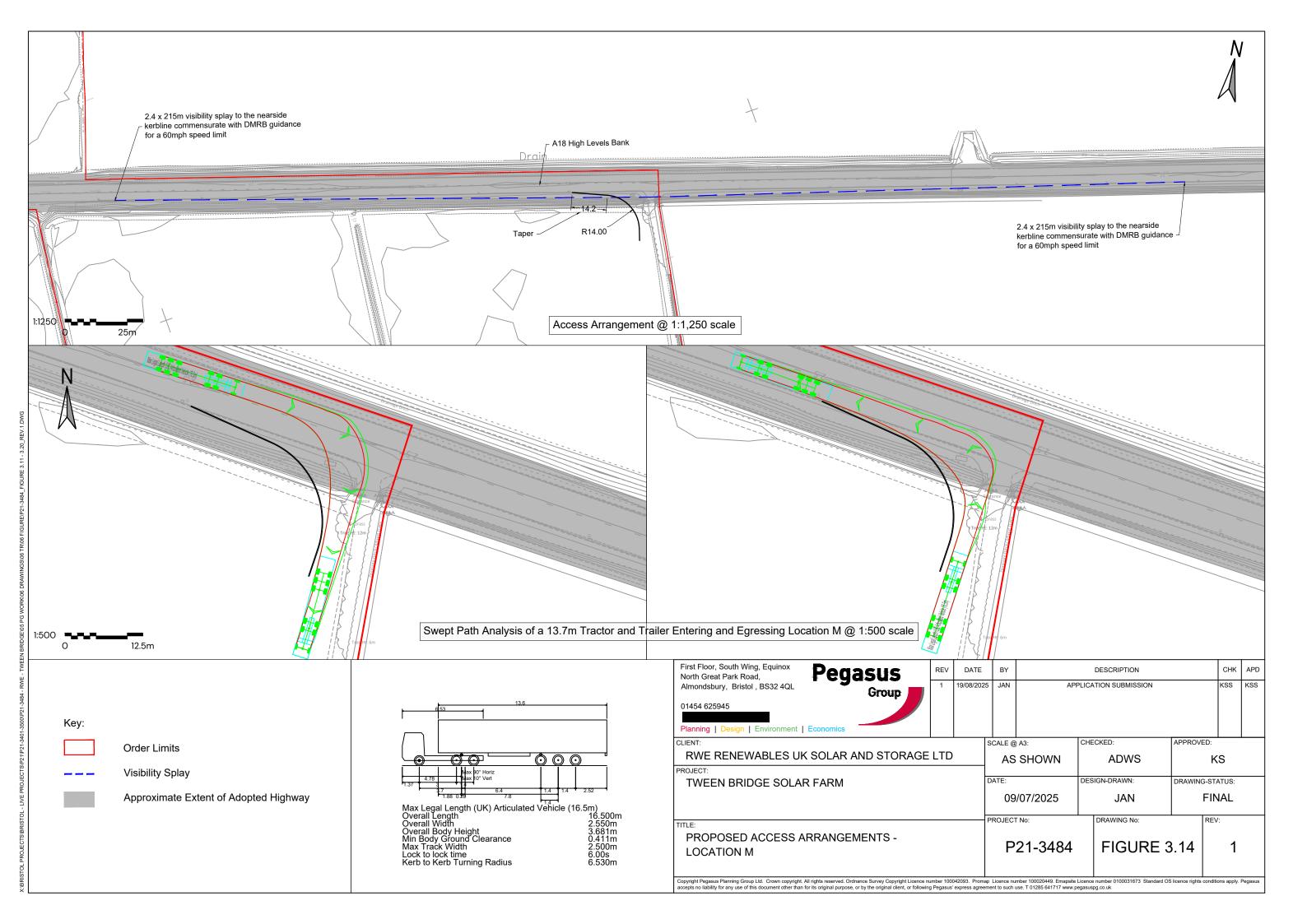


Figure 3.15 Proposed Access Arrangements – Access N

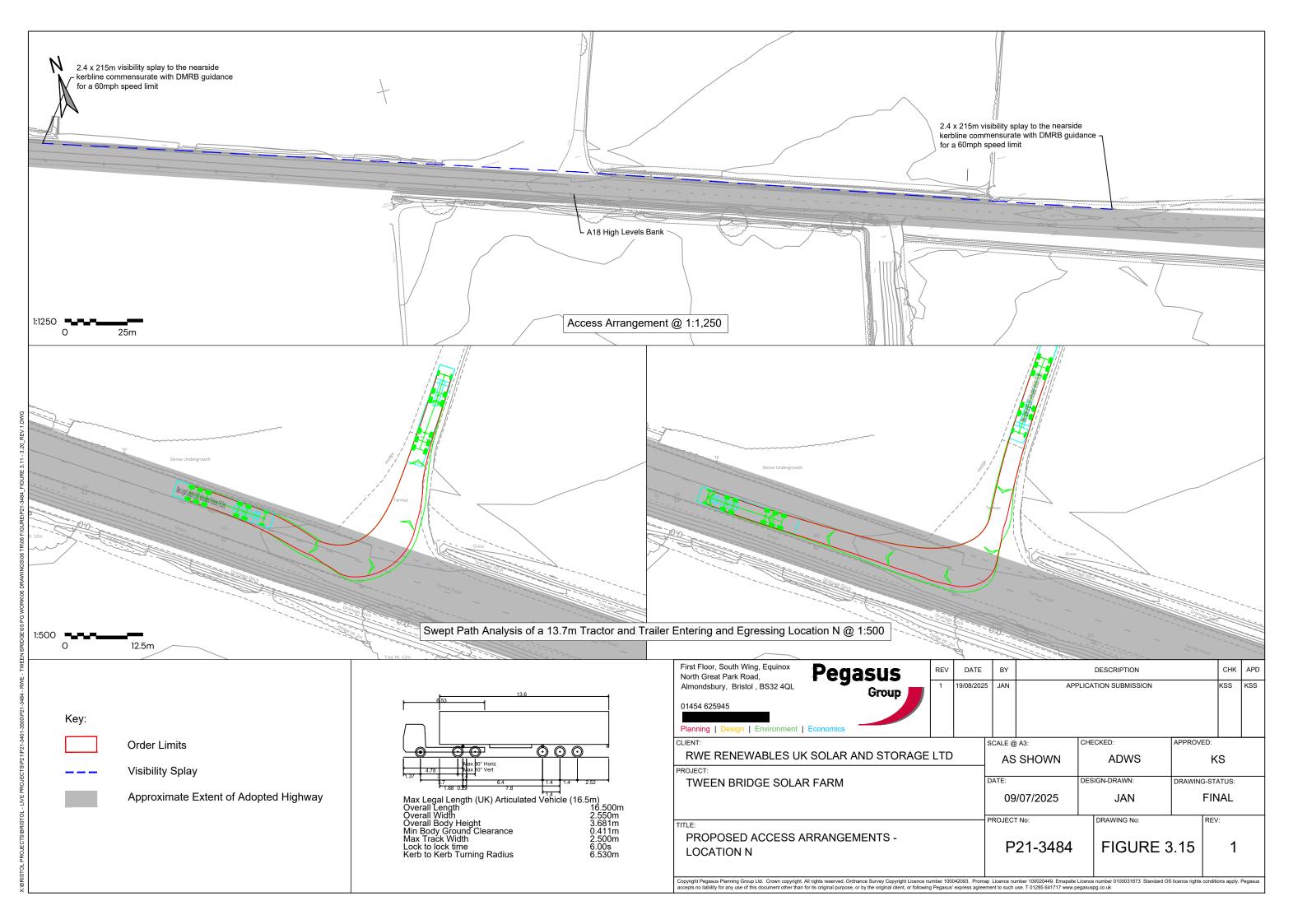


Figure 3.16 Proposed Access Arrangements – Access O

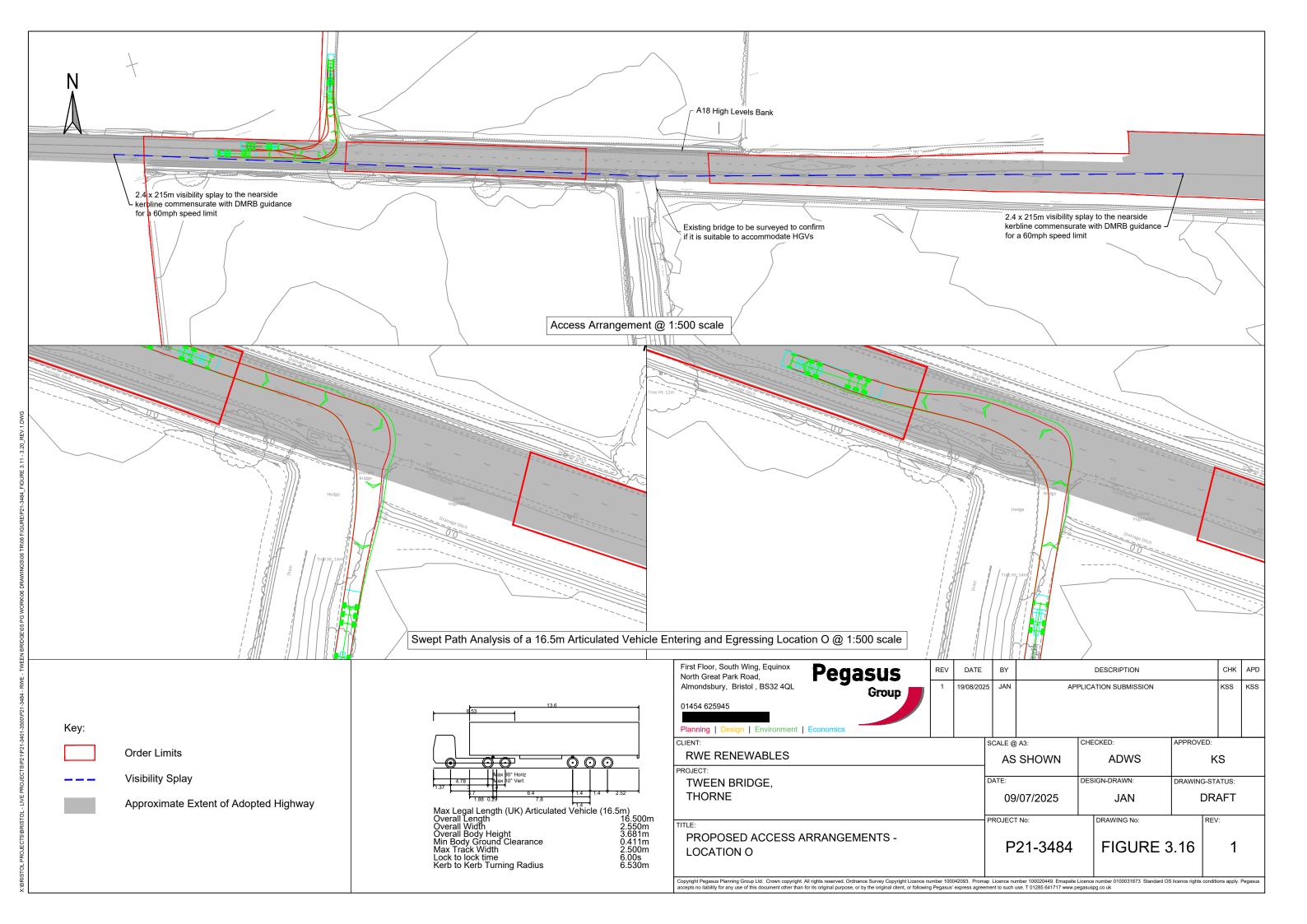


Figure 3.17 Proposed Access Arrangements – Access P

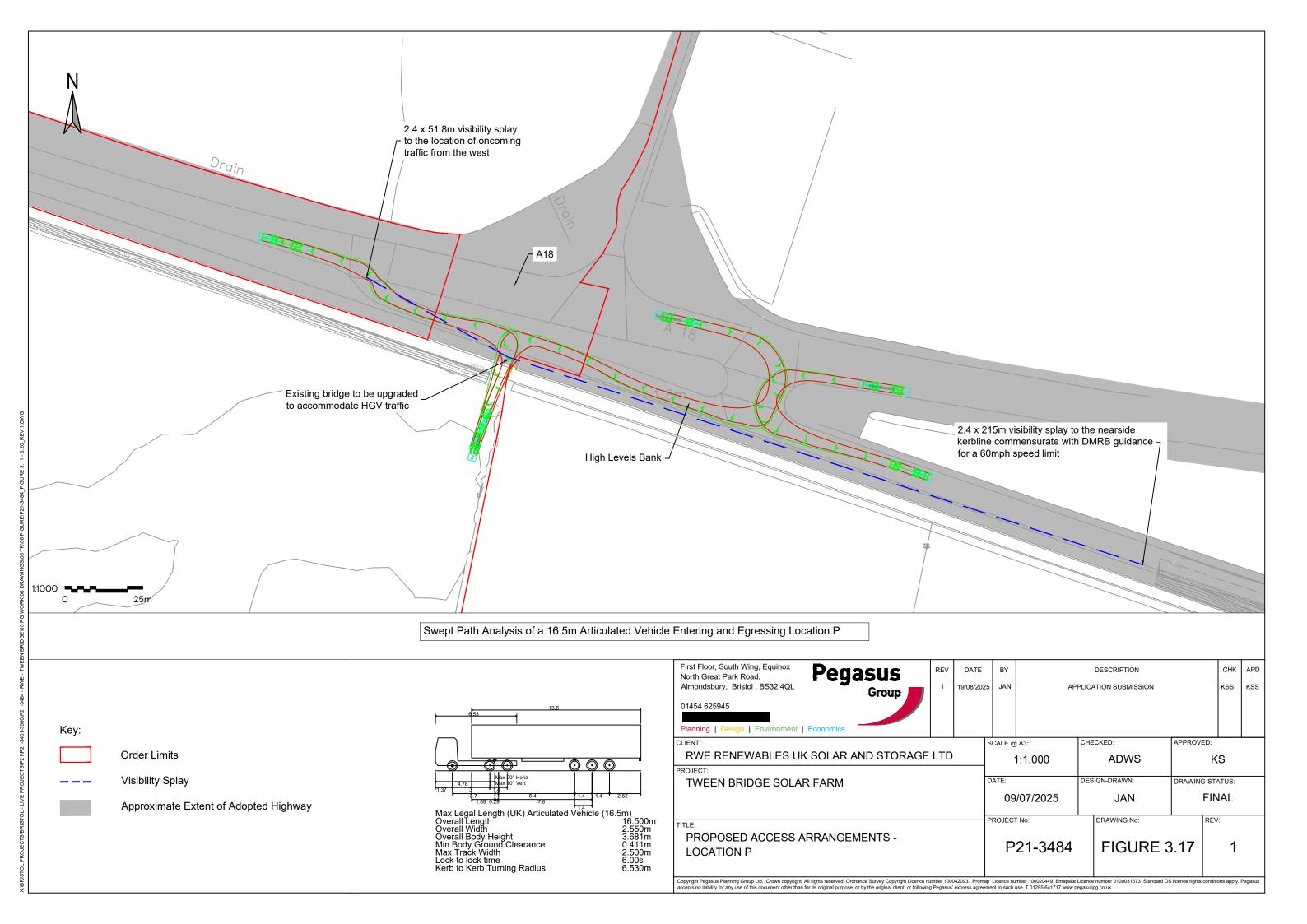


Figure 3.18 Proposed Access Arrangements – Access Q

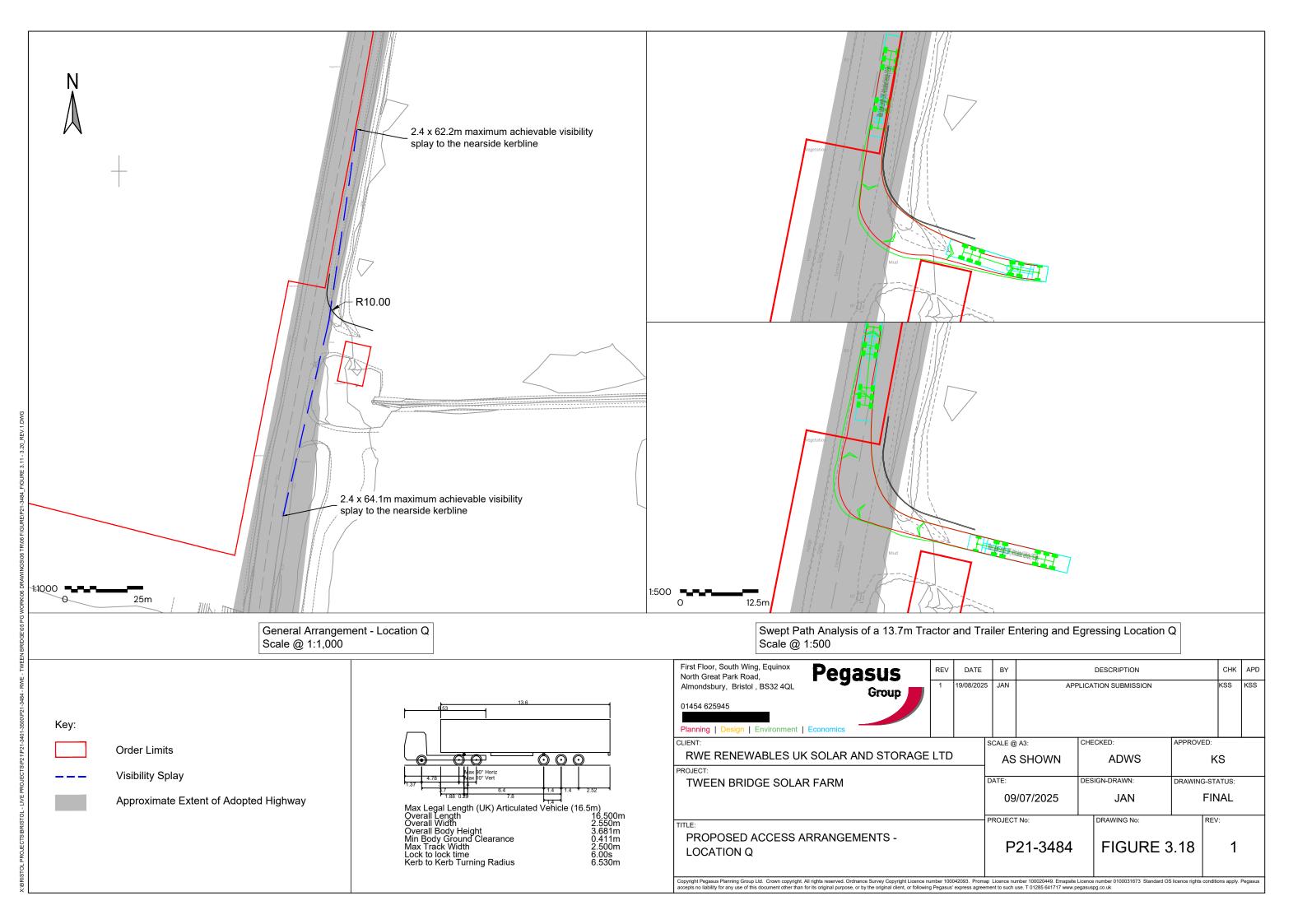


Figure 3.19 Proposed Access Arrangements - Access R

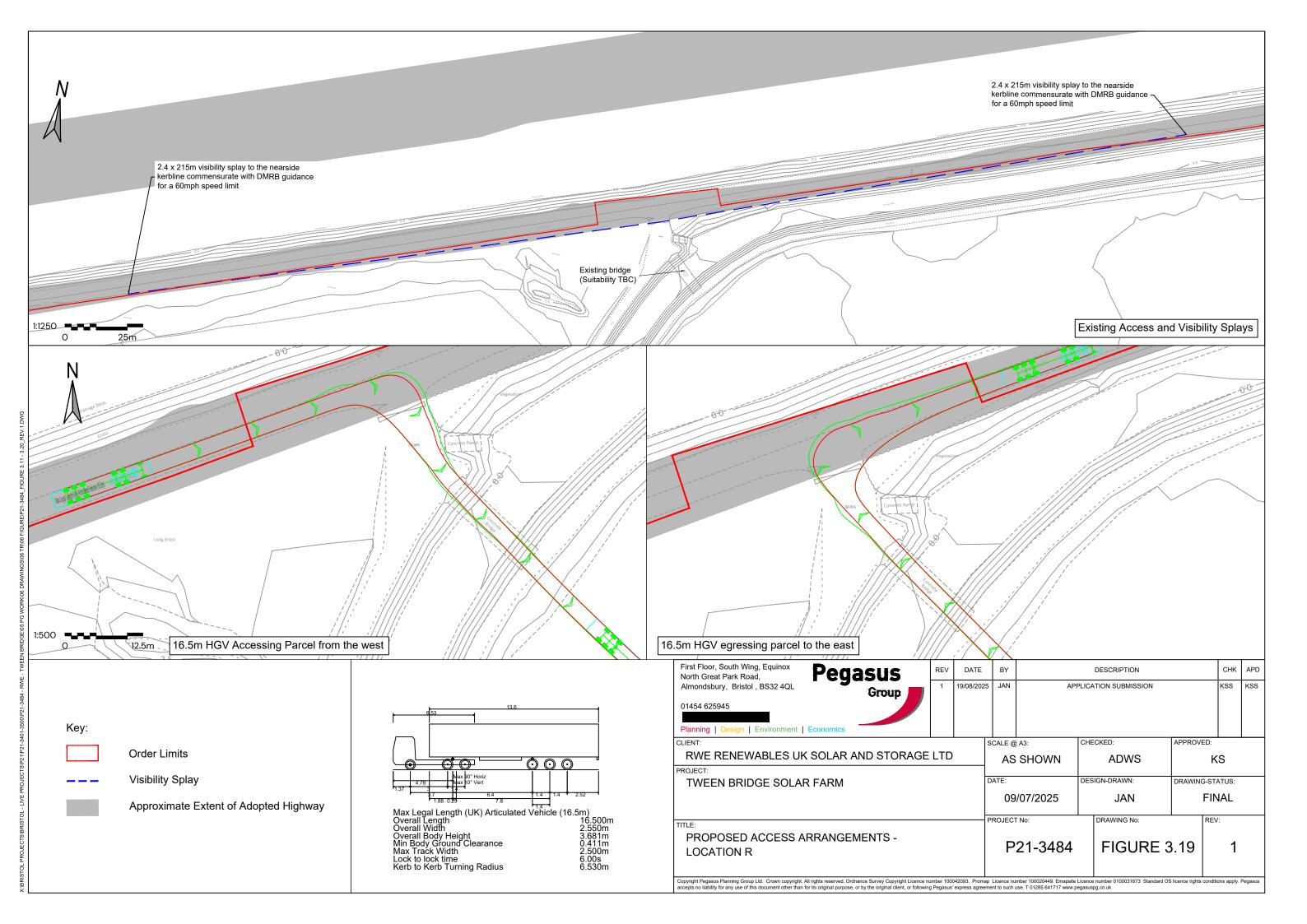


Figure 3.20 Proposed Access Arrangements – Access S

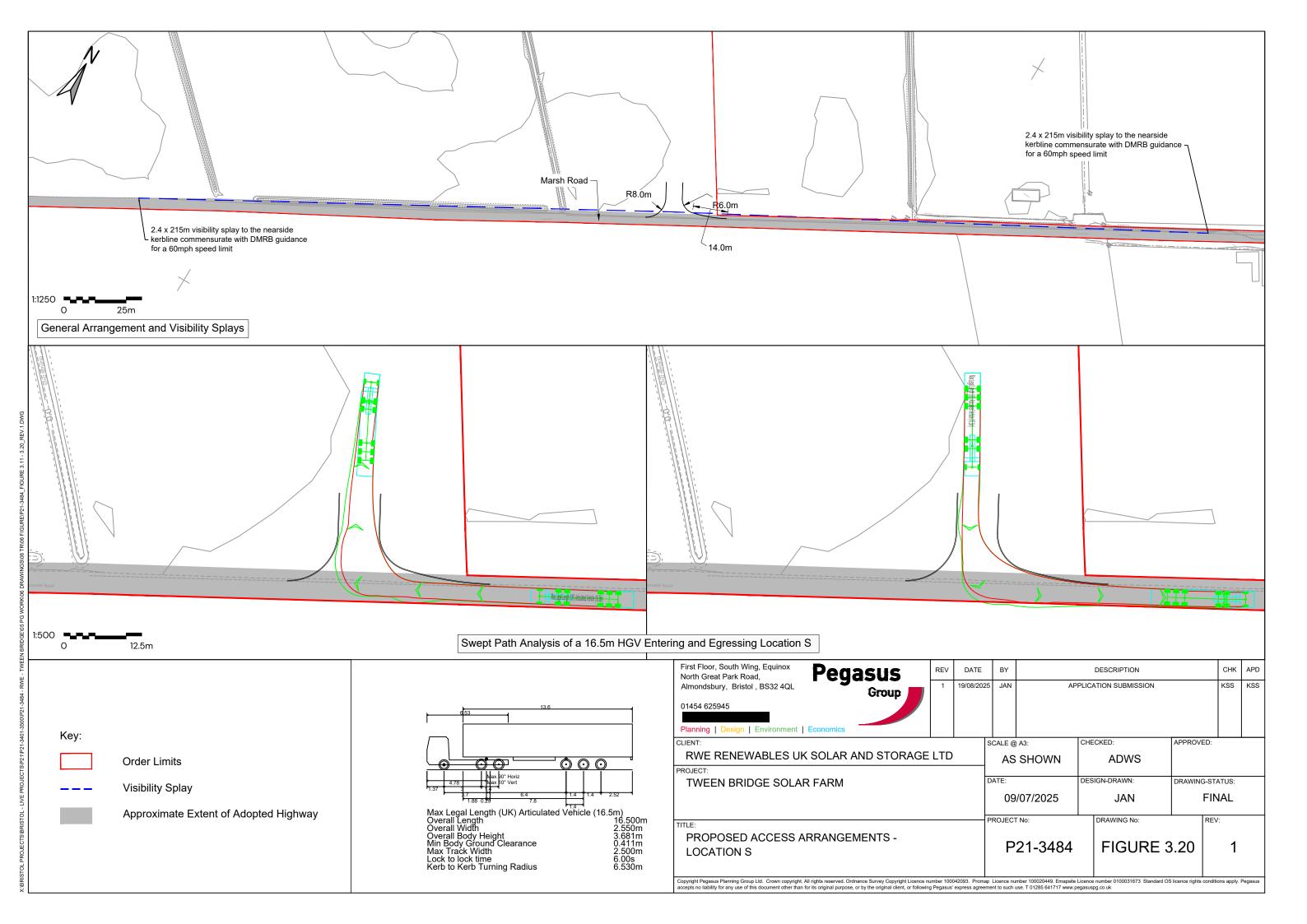


Figure 3.24 Proposed Access Arrangements – Access W

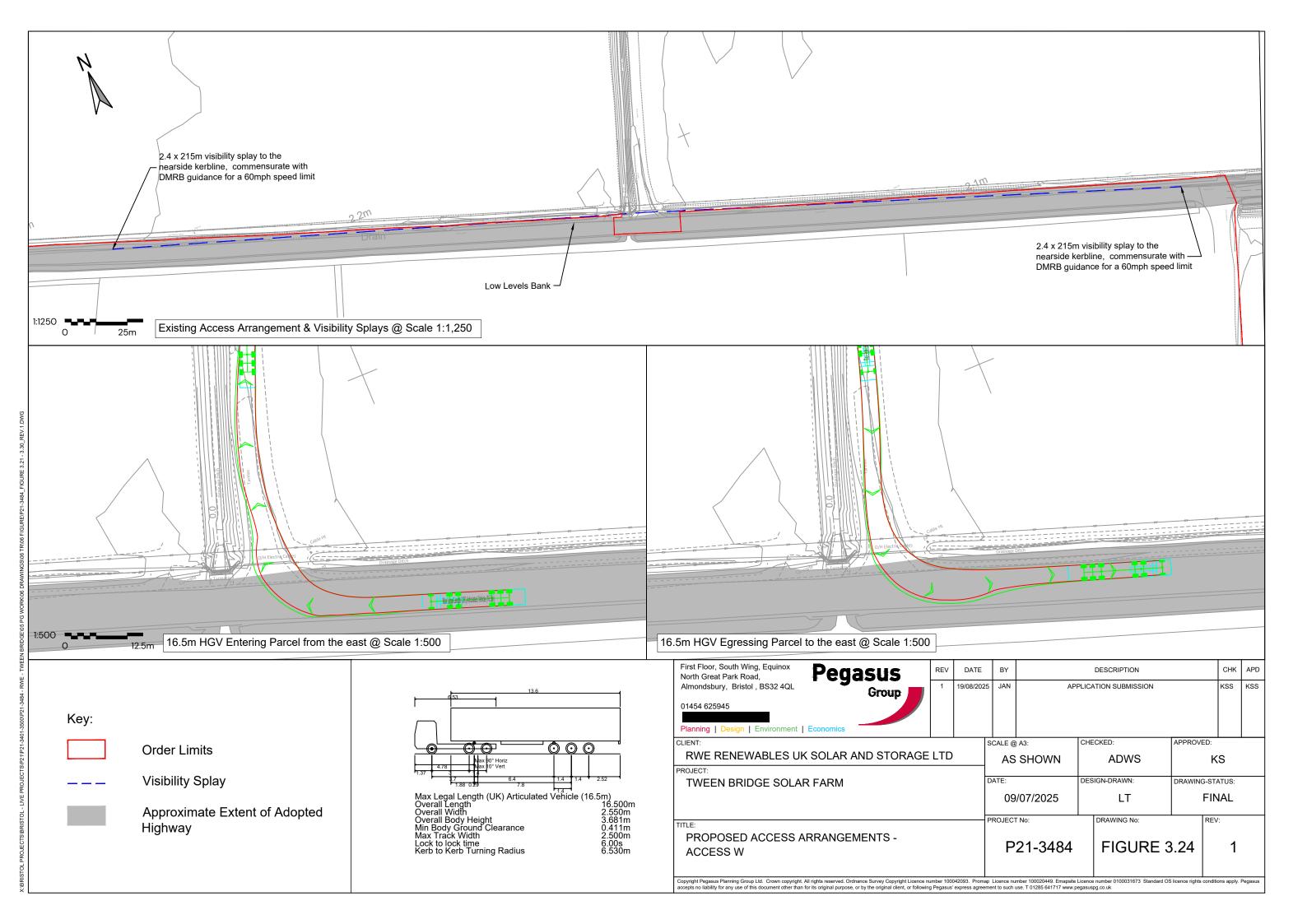


Figure 3.25 Proposed Access Arrangements – Access X

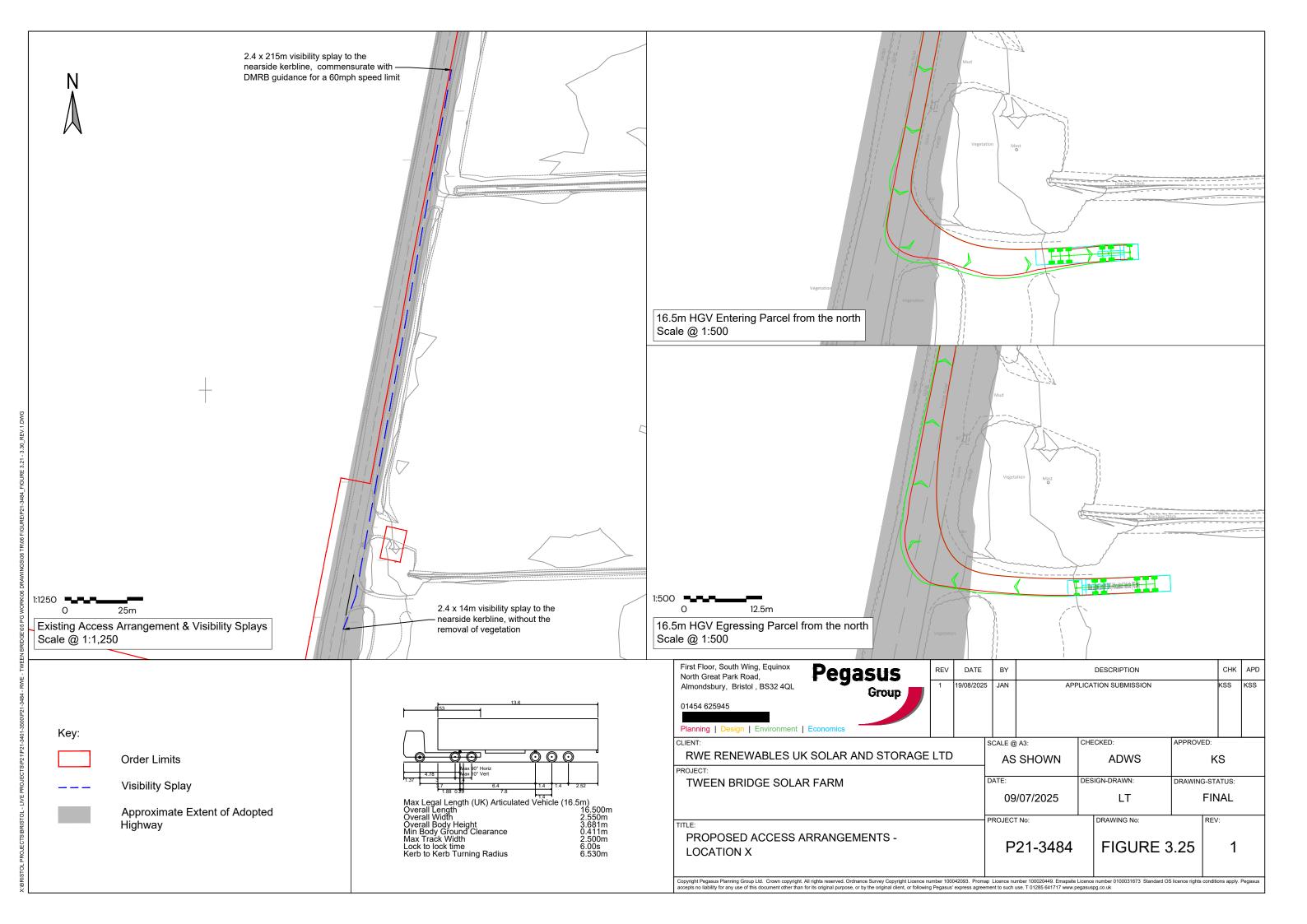


Figure 3.26 Proposed Access Arrangements – Access Y

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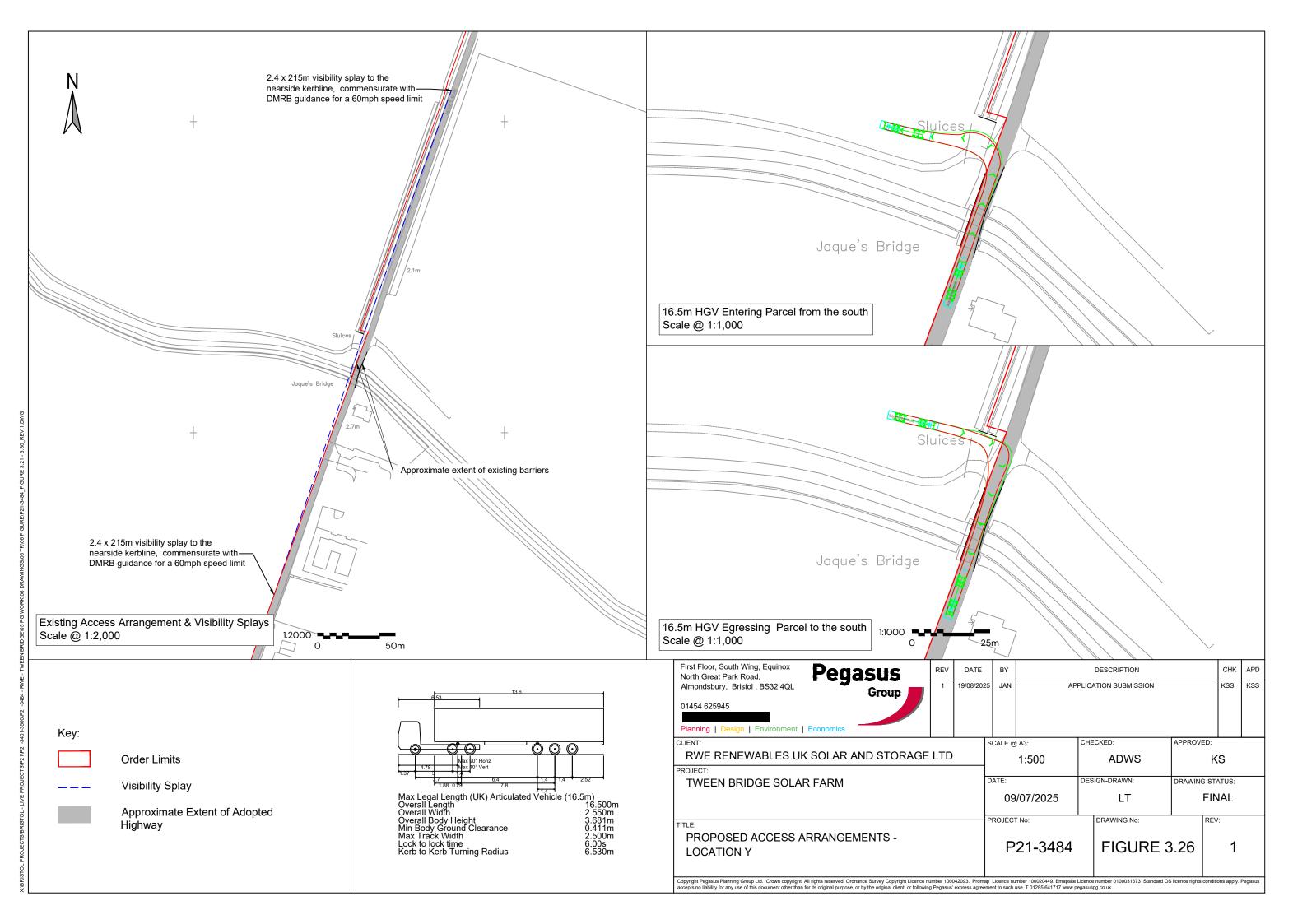


Figure 3.27 Proposed Access Arrangements – Access Z

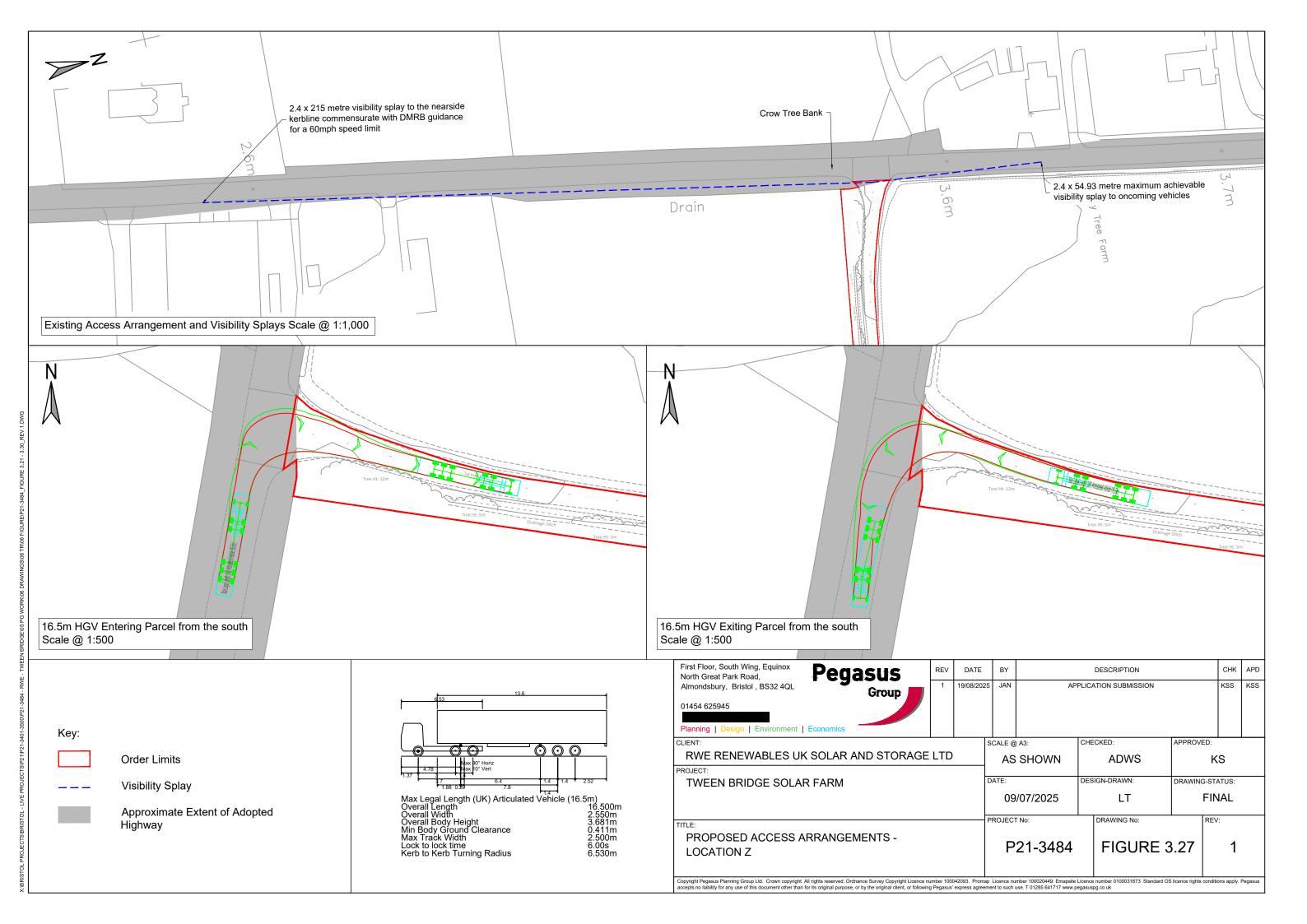


Figure 3.28 Proposed Access Arrangements – Access AA and AB

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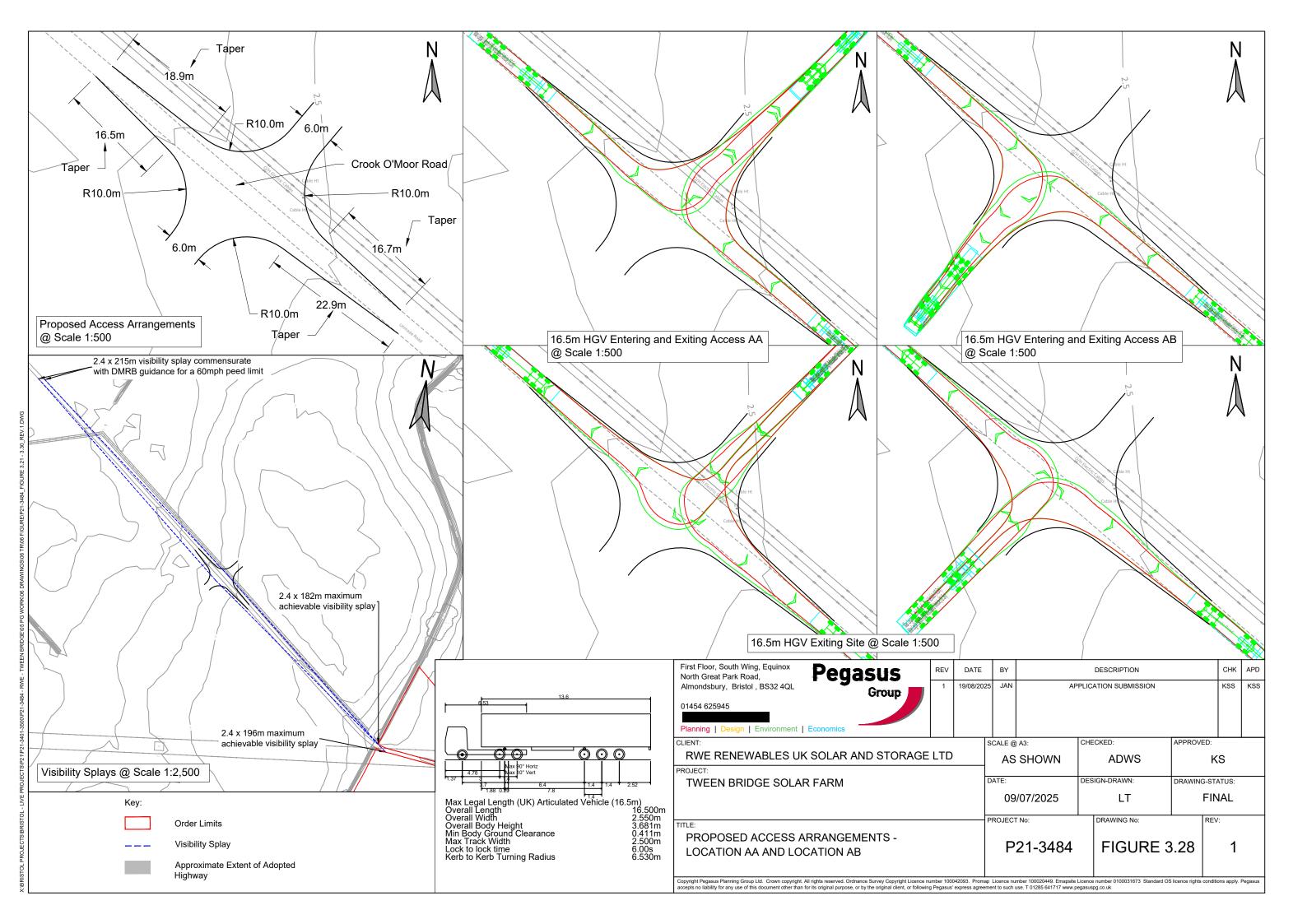


Figure 3.29 Proposed Access Arrangements – Access AC

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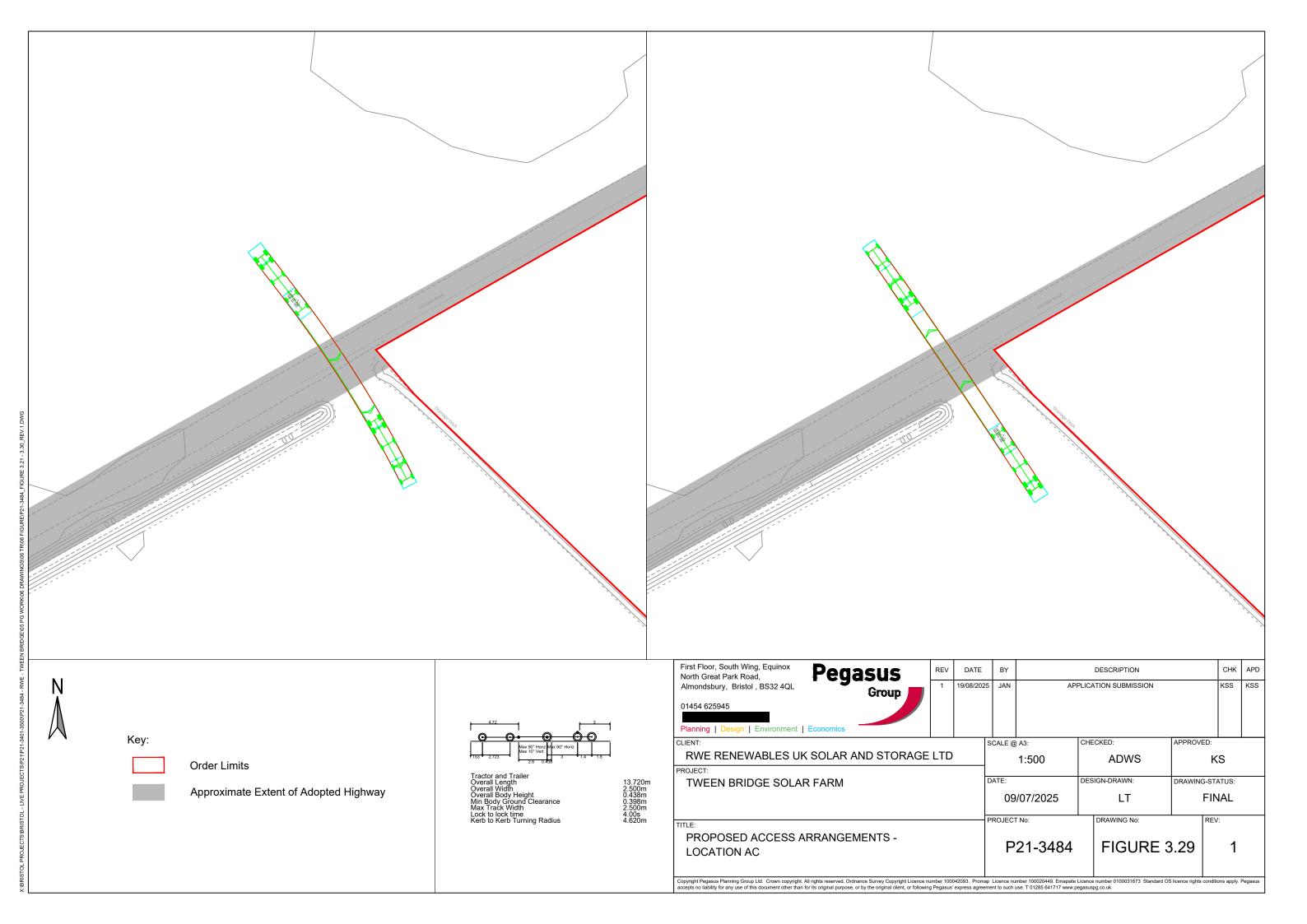


Figure 3.30 Proposed Access Arrangements – Access AD

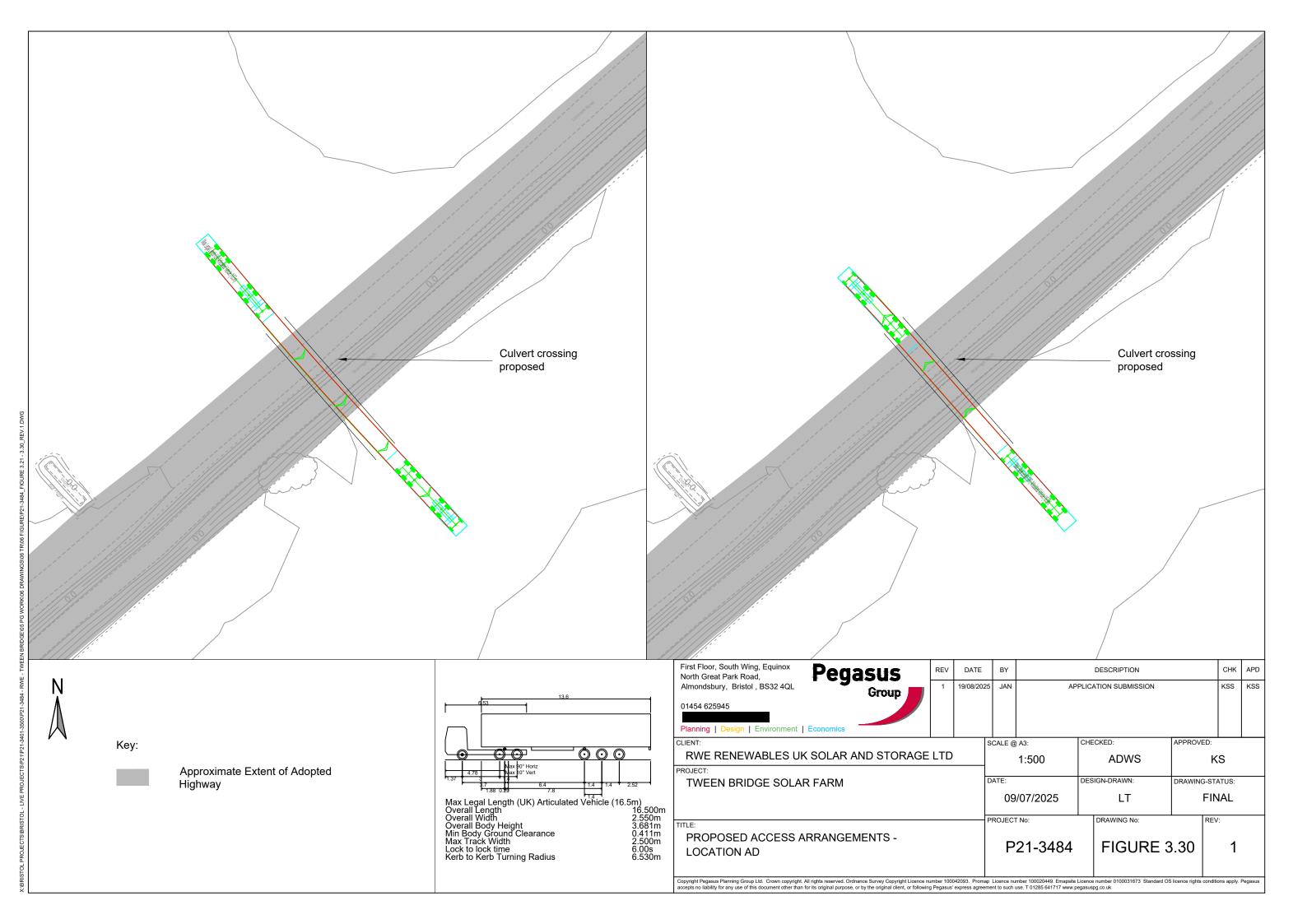


Figure 3.31 Proposed Access Arrangements – Access AE

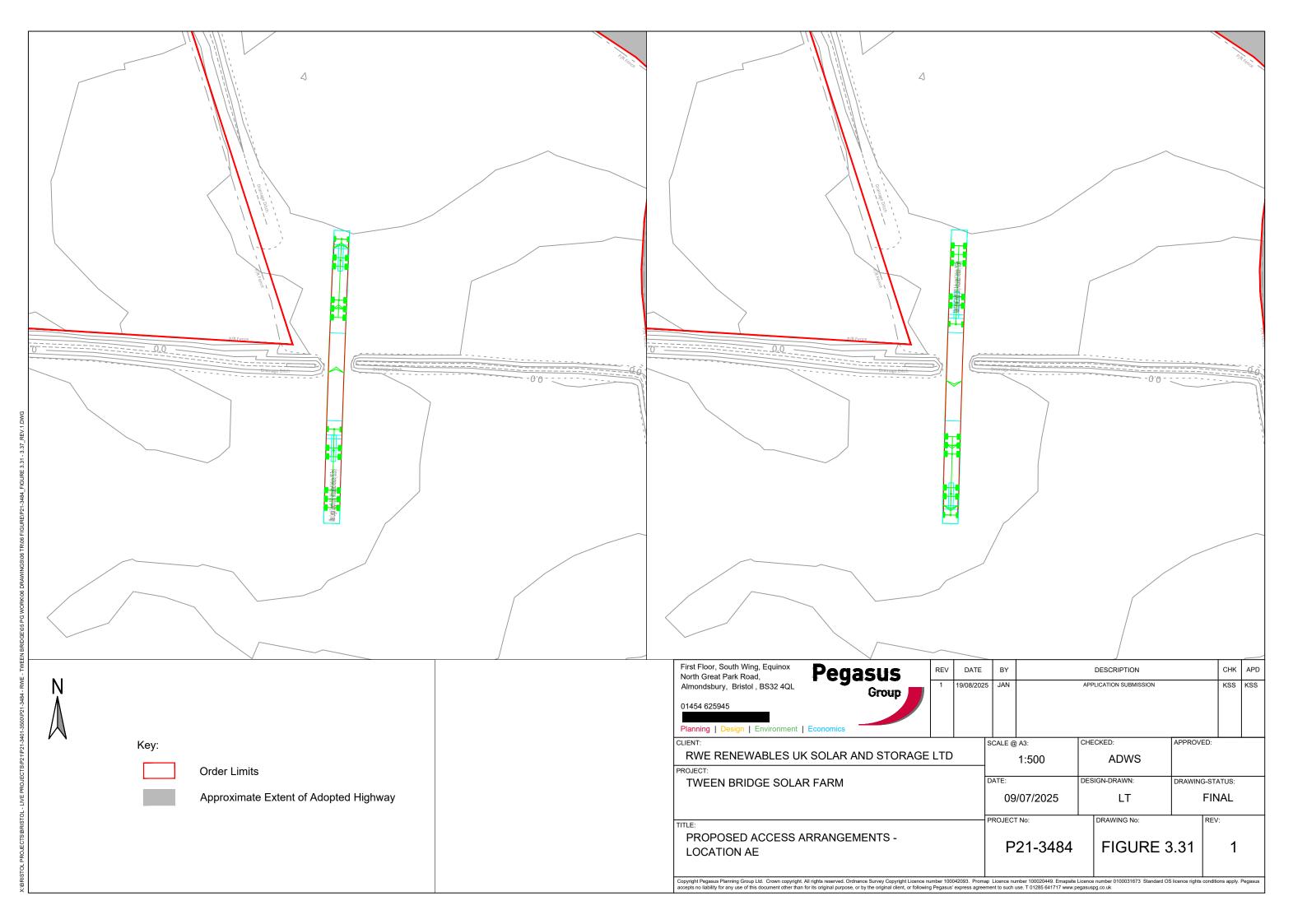


Figure 3.34 Proposed Access Arrangements – Access AH

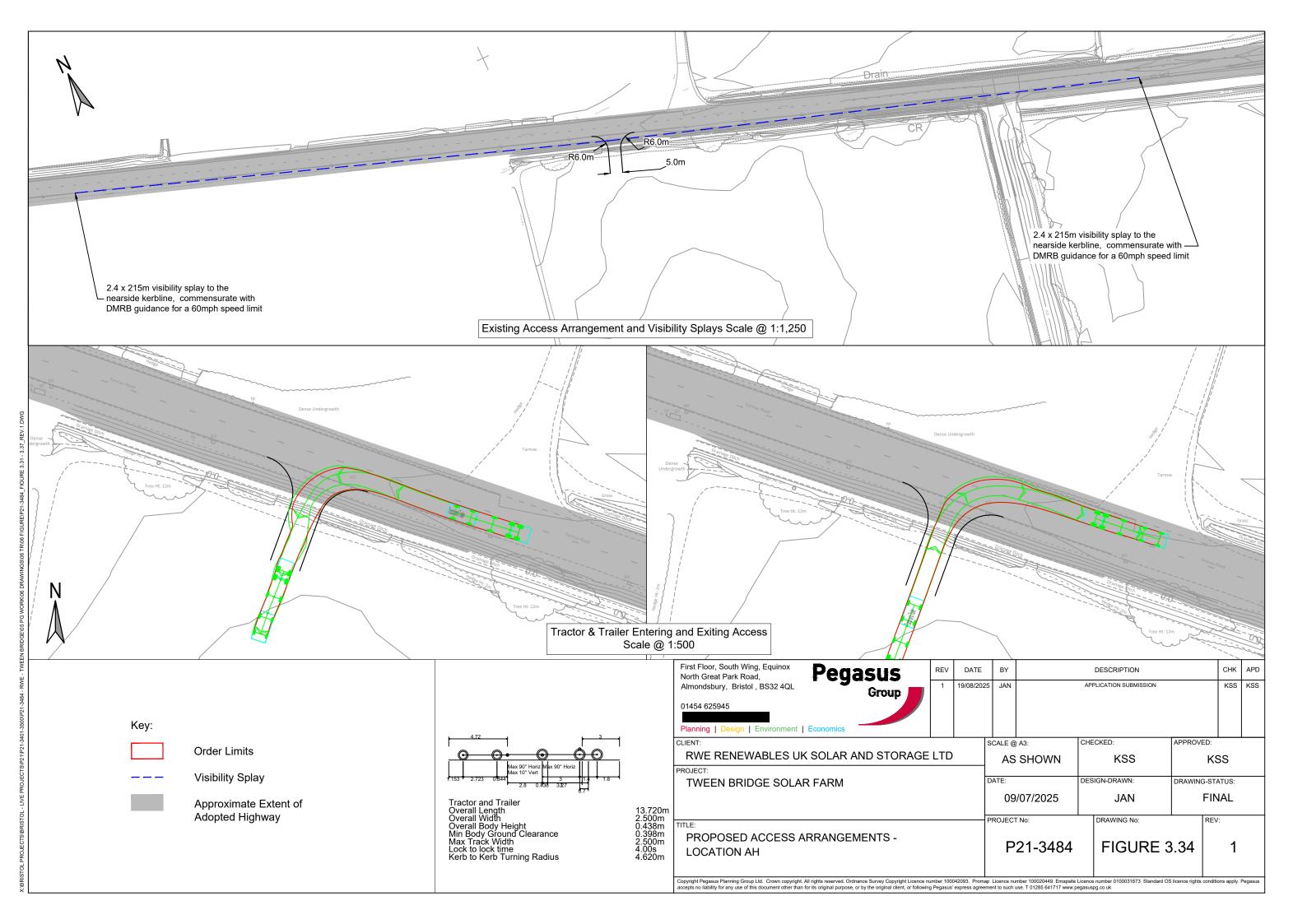


Figure 3.35 Proposed Access Arrangements – Access Ai

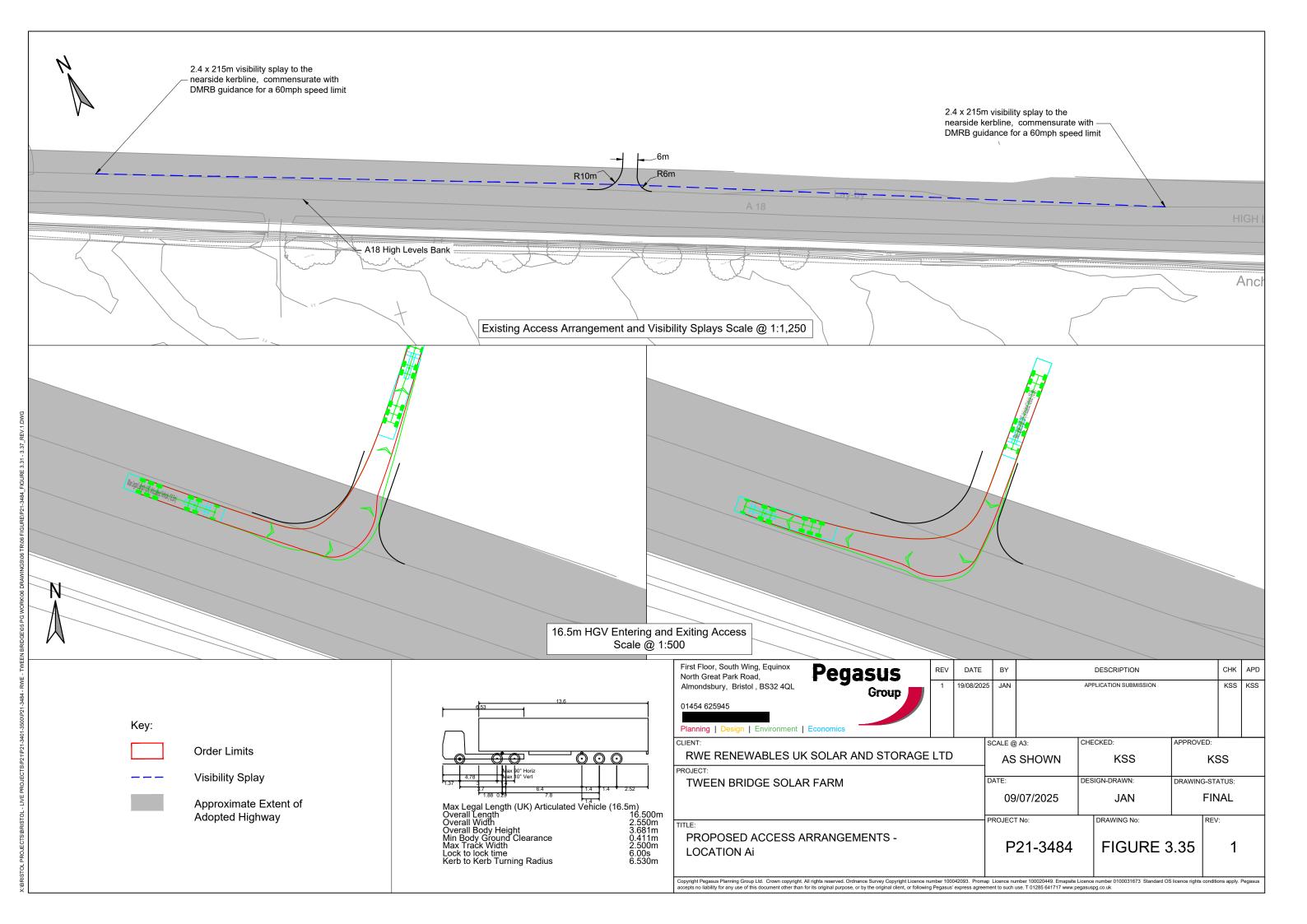


Figure 3.36 Proposed Access Arrangements – Access AJ

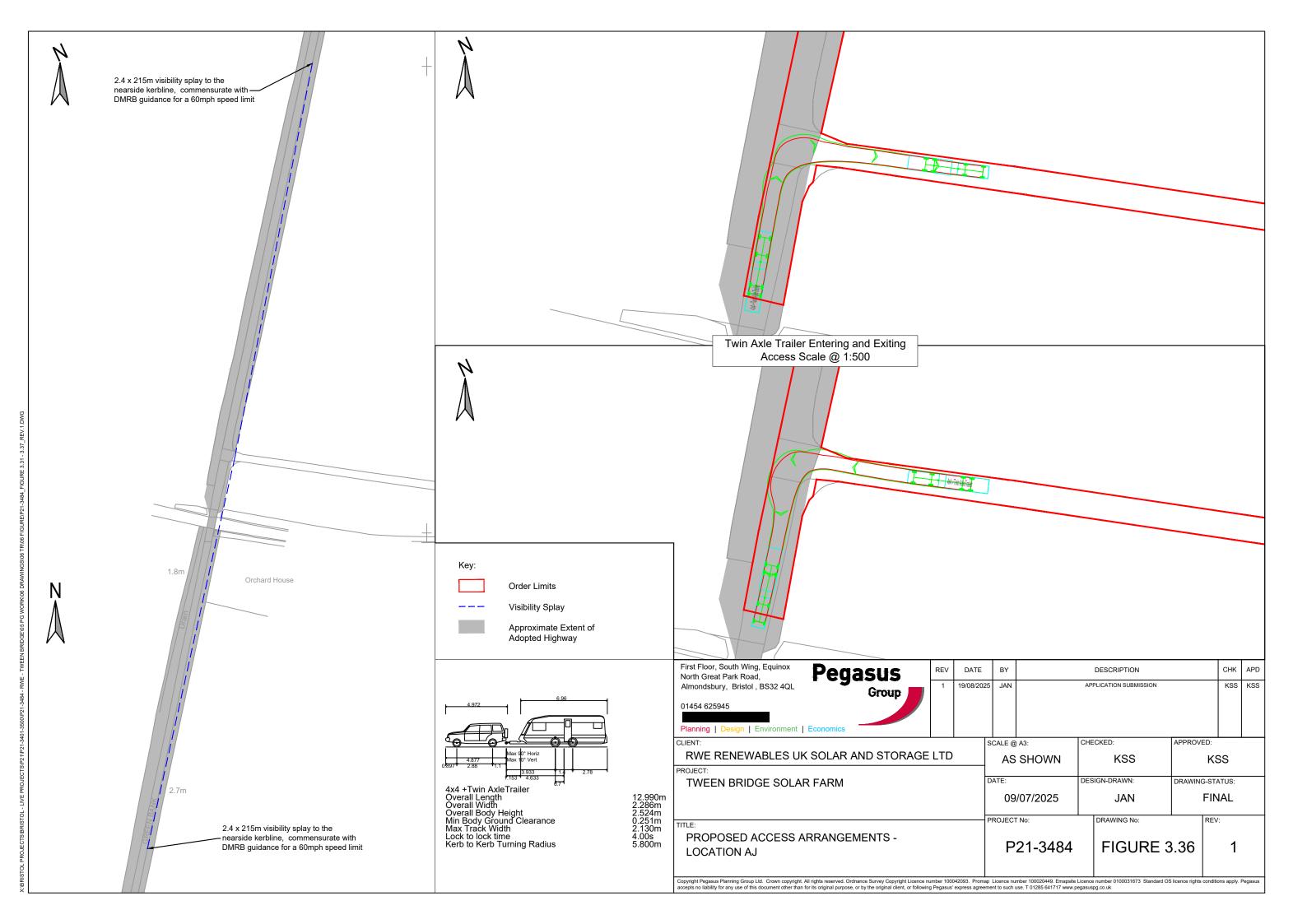


Figure 3.37 Proposed Access Arrangements – Access AK

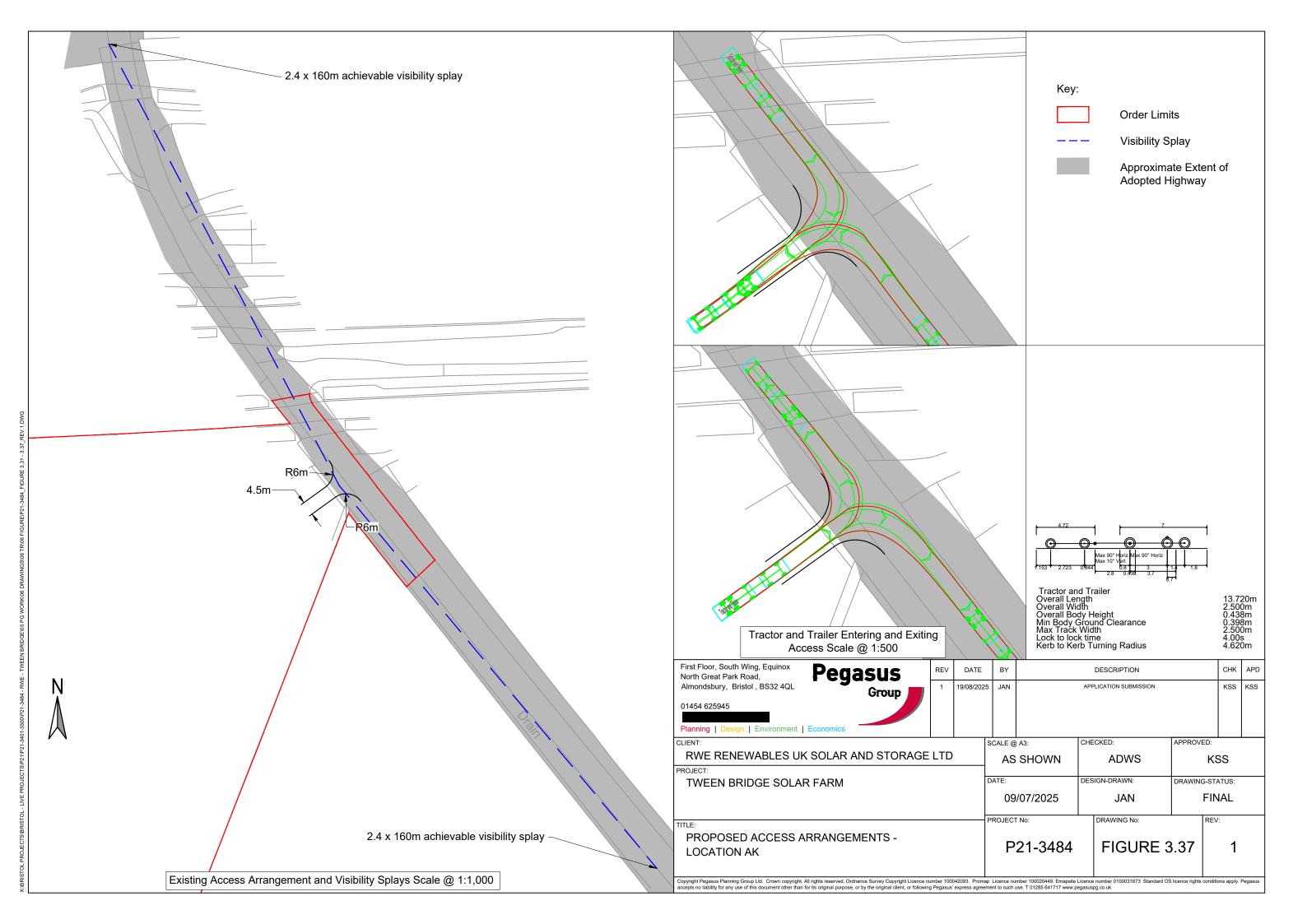
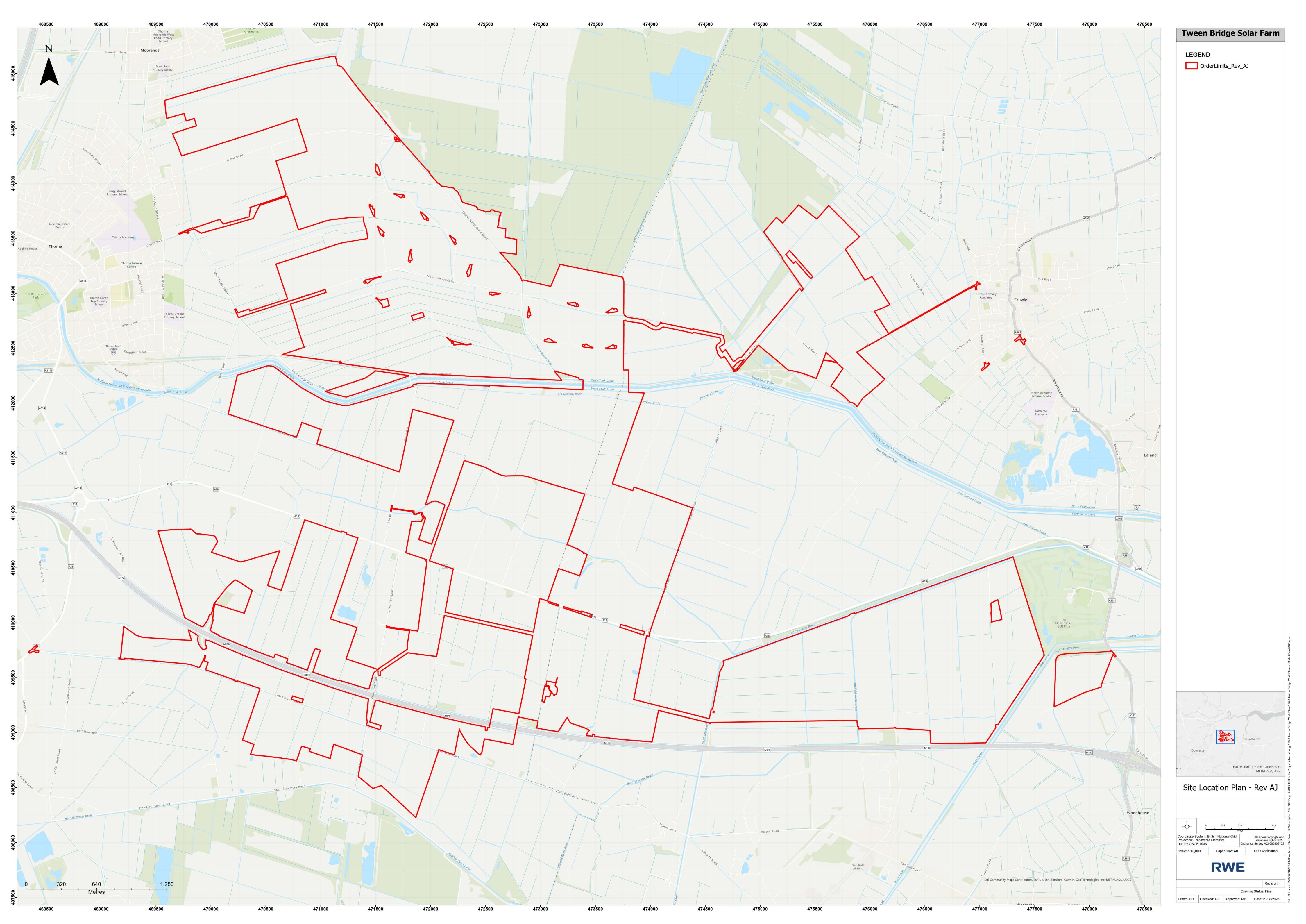


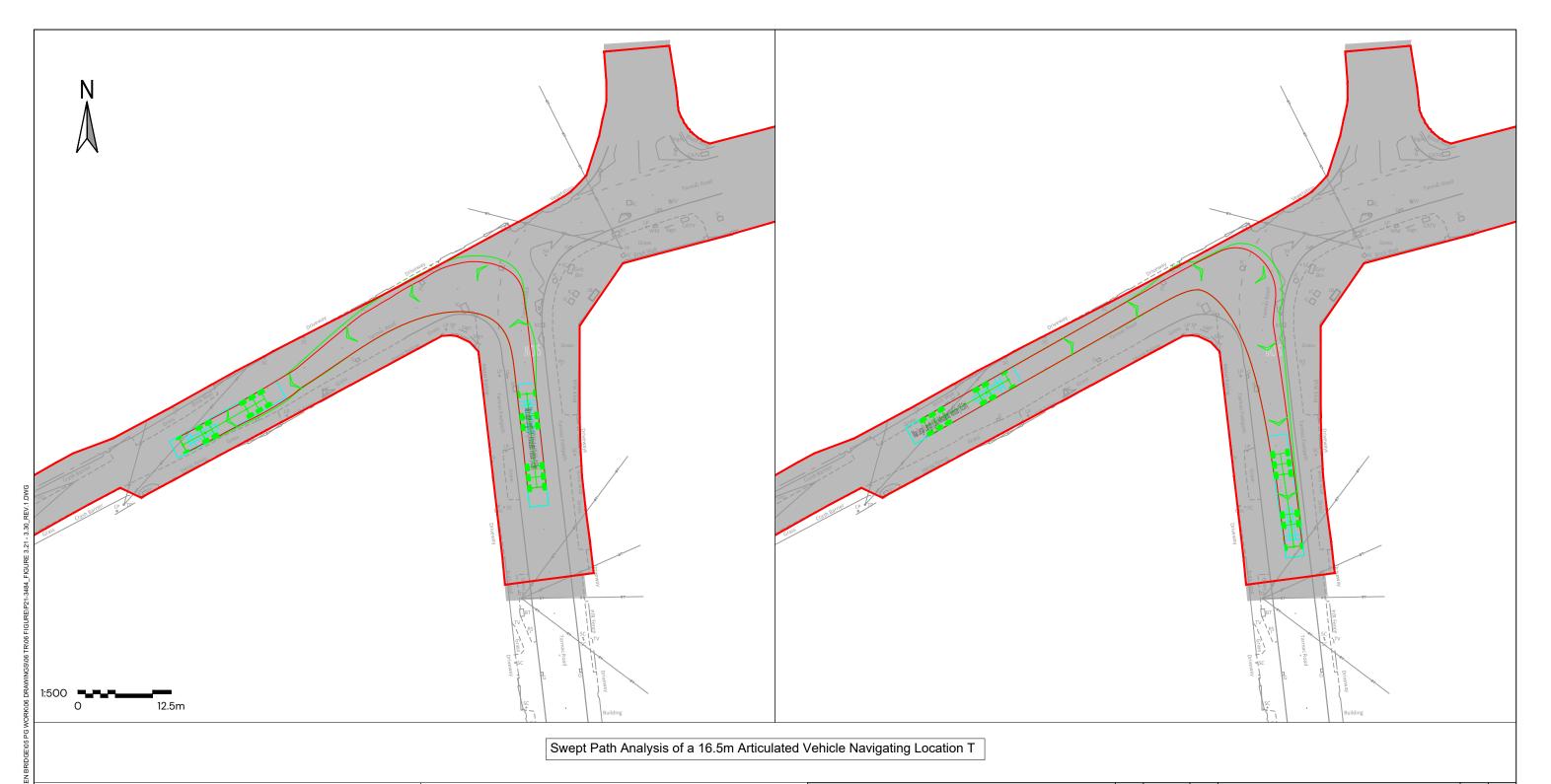
Figure 4.1 Construction Traffic Route Plan to Land Areas

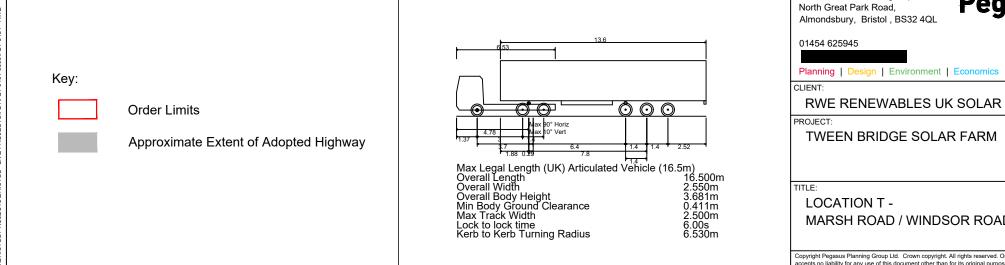
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Appendix A – Order Limits



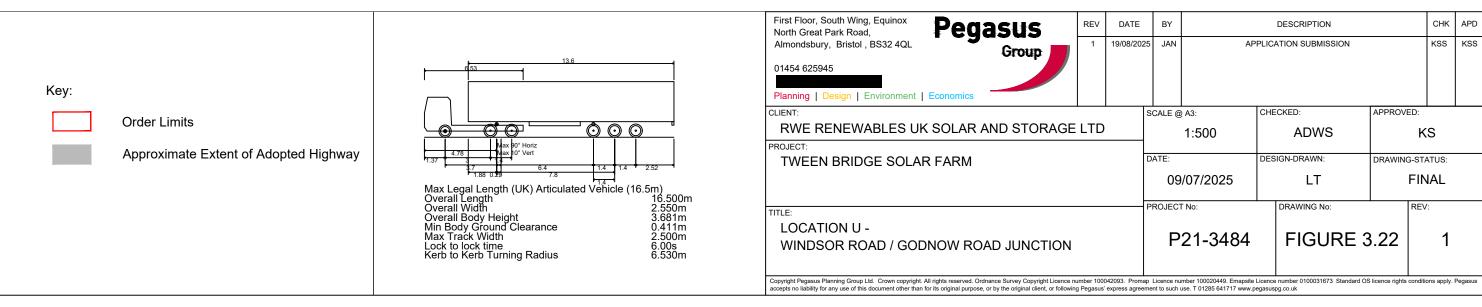
Appendix B – Swept Path Assessments (Godnow Road, Windsor Road and Marsh Road)



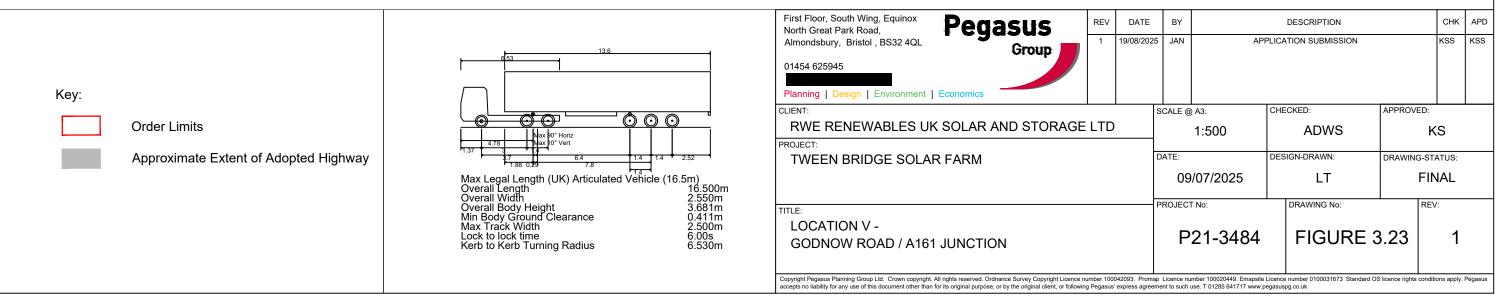


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| TITLE: | | | PROJEC1 | ΓNo: | DRAWING No: | RE | :V: | |
| LOCATION T - MARSH ROAD / WINDSOR ROAD JUNCITON | | | P21-3484 | | FIGURE 3 | FIGURE 3.21 | | |
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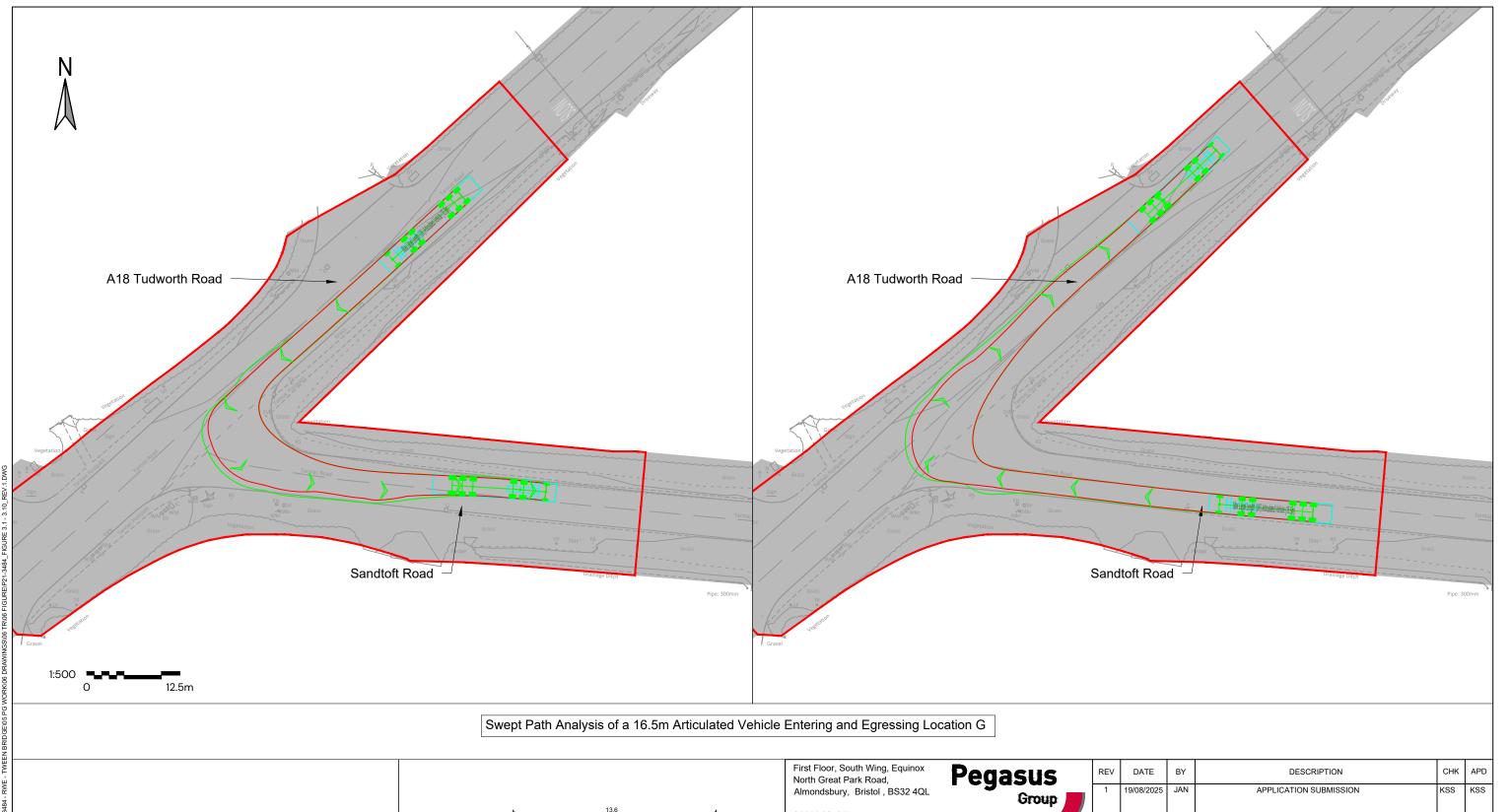


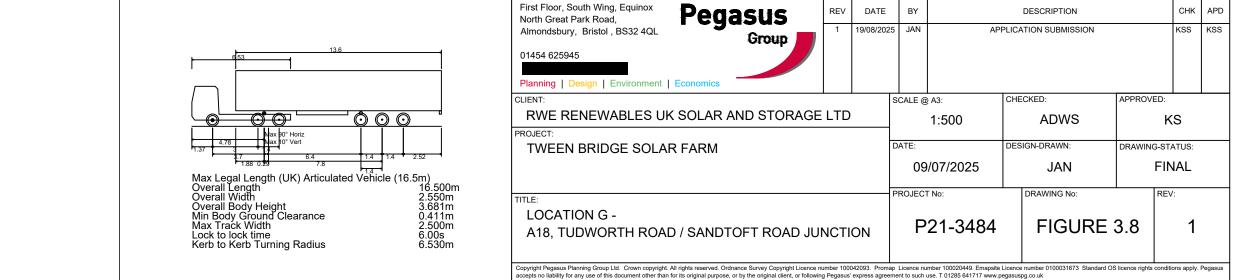






Appendix C – Swept Path Assessments (A189 Tudworth Road / Sandtoft Road)





Appendix D – Temporary Signage

WORKS TRAFFIC LARGE VEHICLES TURNING

1. Temporary Construction Traffic signage (Diagram 7301 'WORKS TRAFFIC' in the TSRGD)