The Great Grid Upgrade

BT-NG-020621-545-0283

Bramford to Twinstead Reinforcement

Volume 8: Examination Submissions

Document 8.8.10: Swept Path Assessment for Alternative Temporary Access Routes off the A131

Final Issue A
December 2023

Planning Inspectorate Reference: EN020002

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1. Introduction

1.1 Overview

- This document has been produced in response to Action Point AP2 arising from Compulsory Acquisition Hearing 1 [EV-045] which required the Applicant to 'submit an appendix to the earlier technical note to deal with the environmental comparison and swept path analyses for the Applicant's preferred route for the A131 construction haul road and the alternative routes suggested by DFP Nott and Sons and Mr PJ Nott for their holdings'.
- This document also addresses an action arising from Compulsory Acquisition Hearing 2 which required the Applicant to submit the swept path assessment undertaken in respect of the proposed alternative access routes for the temporary access route off the A131. No formal Action Points were published by the Examining Authority for this hearing, so actions were recorded by the parties to whom actions were addressed.
- The environmental comparison was addressed by way of an update made to the Technical Note on Temporary Access Route off the A131 at Deadline 4 [REP4-009].
- The Swept Path Assessment for the Applicant's preferred route of the temporary access route off the A131 (as represented in Figure 1.1 of the Technical Note on Temporary Access Route off the A131 [REP4-009]) was addressed by the submission of the Temporary Access Route off the A131 Concept Design and Swept Path Assessment at Deadline 5 [REP5-026].
- The Applicant appointed a specialist transportation and access consultant to undertake a swept path assessment for the alternative routes for the temporary access route off the A131 as suggested by DP Nott & Sons (in [REP2-055]) and Mr PJ Nott (in [REP3-087]). These alternative routes are also shown in Figure 5.3 of the Technical Note on Temporary Access Route off the A131 [REP4-009]. For clarity, Figure 5.3 refers to the REP2-055 route as 'G Nott (Option 3d)' and the REP3-087 route as 'P Nott (Option 2e)'.
- This document, which contains (at Appendices A and B) the Swept Path Assessment for the two alternative options, supplements the information already presented within the Technical Note on Temporary Access Route off the A131 [REP4-009] and the Temporary Access Route off the A131 Concept Design and Swept Path Assessment [REP5-026] submitted at Deadlines 4 and 5 respectively.

2. Swept Path Assessment (Option 2e)

2.1 Review of Swept Path Assessment

- Option 2e was proposed by Mr PJ Nott [REP3-087], who is a landowner with interests in the land at the western end of the proposed temporary access route off the A131. The Swept Path Assessment is attached as Appendix A. Drawing 21-1030.SPA04 Sheets 1 to 10 of Appendix A provides the Swept Path Assessment of an abnormal indivisible load (AIL) transport unit travelling from access point H-AP20 through to access point H-AP10 (at Stour Valley West Cable Sealing End (CSE) Compound) along the proposed Option 2e alternative of the temporary access route.
- The Swept Path Assessment identifies that in a number of places an oversail occurs as a result of an attempt to track the AIL vehicle along the left-hand lane of the temporary access route. If the AIL occupied the full width of the temporary access route, no oversail would be expected, and this is assumed to be the approach adopted by the main works contractor during the AIL deliveries.
- As noted in the Technical Note on Temporary Access Route off the A131 [REP4-009], the turn north proposed immediately after leaving the A131 would require vehicles to make two tight turns in succession, increasing the time that the back of a vehicle would block the carriageway and the time that the second vehicle would need to wait before leaving the carriageway. This may also apply to a lesser extent at the crossing of Twinstead Road and the sharp right hand turn soon after. It is further noted that, in places, the route of Option 2e sits outside the Order Limits.
- The overall assessment of Option 2e is presented within the Technical Note on Temporary Access Route off the A131 [REP4-009], with the conclusion being this route is similar to the selected Option 2a, but with changes incorporated that mean it performs worse than the selected option from a highways perspective.

3. Swept Path Assessment (Option 3d)

3.1 Review of Swept Path Assessment

- Option 3d was proposed by DP.Nott & Sons [REP2-055]. The Swept Path Assessment is attached as Appendix B. Drawing 21-1030.SPA05 Sheets 1 to 11 of Appendix B provides the Swept Path Assessment of an AIL transport unit travelling from access point H-AP20 through to access point H-AP10 along the proposed Option 3d alternative of the temporary access route.
- The Swept Path Assessment identifies that in a number of places an oversail occurs as a result of an attempt to track the AIL vehicle along the left-hand lane of the temporary access route. If the AIL occupied the full width of the temporary access route, no oversail would be expected, and this is assumed to be the approach adopted by the main works contractor during the AIL deliveries.
- Option 3d makes use of short sections of the public highway on Oak Road, Twinstead Road and Lorkin's Lane, and although the Swept Path Assessment has assumed an available road width of 7m throughout the route, the sections of public highway which form part of this route have a carriageway width of less than this. It is also noted that significant oversails occur at the points where the route enters and leaves the public highway sections of the route, and these would both require more detailed assessment of suitability. As a minimum substantial additional works would be required to address these issues, although further assessment may deem the route unsuitable for AlL movements. It is further noted that, in places, the route of Option 3d sits outside the Order Limits.
- The overall assessment of Option 3d is presented within the Technical Note on Temporary Access Route off the A131 [REP4-009], where it is referred to as Option 3c within the body of the document. This concludes that the route is longer than Option 2a and would require more materials to construct and hence overall the route is considered to be less preferred than the selected Option 2a from a highways perspective.

4. Conclusion

4.1 Review of Swept Path Assessments

- Swept path assessment for the alternative routes for the temporary access route off the A131 as suggested by DP Nott & Sons (in [REP2-055]) and Mr PJ Nott (in [REP3-087]) have been undertaken.
- Both routes share a common access off the A131 at H-AP20. The concept bellmouth design (as per Appendix A of Temporary Access Route off the A131 Concept Design and Swept Path Assessment [REP5-026]) would need to be amended to avoid requiring AlL vehicles to make two tight turns in succession immediately after leaving the A131.
- The AIL would need to occupy the full width of the temporary access route to avoid oversails on some portions of the routes, although no issues with this are anticipated.
- The route proposed by DP Nott & Sons (in [REP2-055]) makes use of short sections of the public highway on Oak Road, Twinstead Road and Lorkin's Lane. Due to a reduced road width on these sections in comparison to the assumed road width of 7m and the significant oversails at the points where this route enters and leaves the public highway, further assessment of this route would be required to confirm its suitability for AIL movements. Substantial additional works would be required as a minimum to address these issues. As this route was already considered less preferred than the selected Option 2a in the Technical Note on Temporary Access Route off the A131 [REP4-009], from a highways perspective Option 2a remains the preferred route.
- The route proposed by Mr PJ Nott (in **[REP3-087]**) is similar in a number of respects to the preferred Option 2a, although the route alignment at the A131 and at the Twinstead Road crossing make this less preferred than Option 2a from a highways perspective.
- 4.1.6 Option 2a remains the preferred route.

Appendix A Abnormal Indivisible Load Swept Path Assessment (Option 2e)



Bramford to Twinstead - Option 2 2e - Abnormal Indivisible Load Swept Path Assessment Considerate of 60te Cable Drum Delivery

Prepared for National Grid





National Grid I 21-1030 Bramford to Twinstead I SPA Summary I 08.12.23

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Checked by:	Andy Pearce				08.12.23
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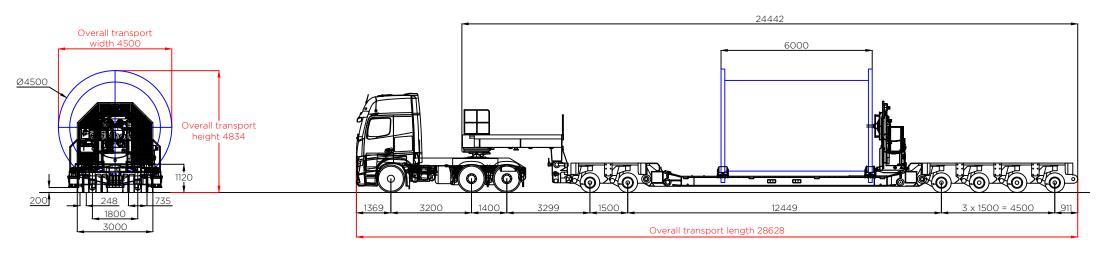
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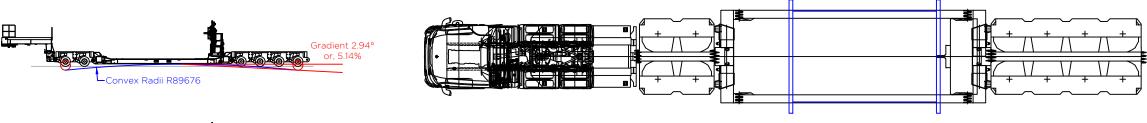
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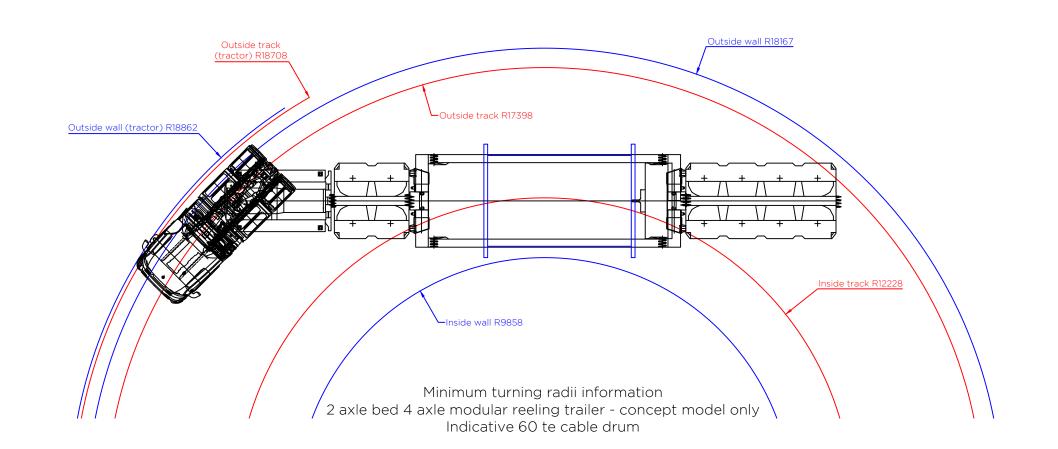
Profile view

Concave Radii R15492

Elevation view - 2 axle bed 4 axle modular reeling trailer - concept model only Indicative 60 te cable drum



Plan view - 2 axle bed 4 axle modular reeling trailer - concept model only Indicative 60 te cable drum



Load table				
4 axle modular reeling trailer				
Self weight of cable drum	60.0 te			
Self weight of trailer	39.6 te			
Self weight of tractor	12.0 te			
Total combined weight	111.6 te			
Max. load per axle line (trailer)	14.12 te			
Load per axle	7.06 te			
Load per wheel (4 per axle)	1.77 te			
Max. overall ground bearing pressure (trailer)	4.77 te/m²			
Tractor (12 te)				

Tractor	(12 te)	
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Front steer	8.1 te
Rear axle	12.7 te
Pear avie	12.7 te

- [1] The figures shown above are representative of the transport configuration portrayed. However, as tractor and trailer arrangements vary then the loads and dimensions indicated should be treated as probable values.
- [2] Actual dimensions, including axle spacing and mean running height, may vary slightly depending on manufacturer of trailer deployed.
- [3] All linear measures in millimetres unless stated otherwise.
- [4] Minimum turning radii based upon maximum steering angle of 45 degrees. Some trailers operate to a maximum steering angle of 60 degrees, which will improve negotiability.

2	29.11.23	Vertical Negotiability Updated
1	28.11.23	Vertical Negotiability Added
0	17.06.22	Issued for comment
Rev.	Date	Amendments

Revisions



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Independent Transportation Engineers



Hams Lane Coleshill West Midlands B46 1AW

Project:

Bramford to Twinstead

Indicative transport configuration Indicative 60.0 te cable drum carried on 2 axle bed 4 axle modular reeling trailer showing minimum turning radii

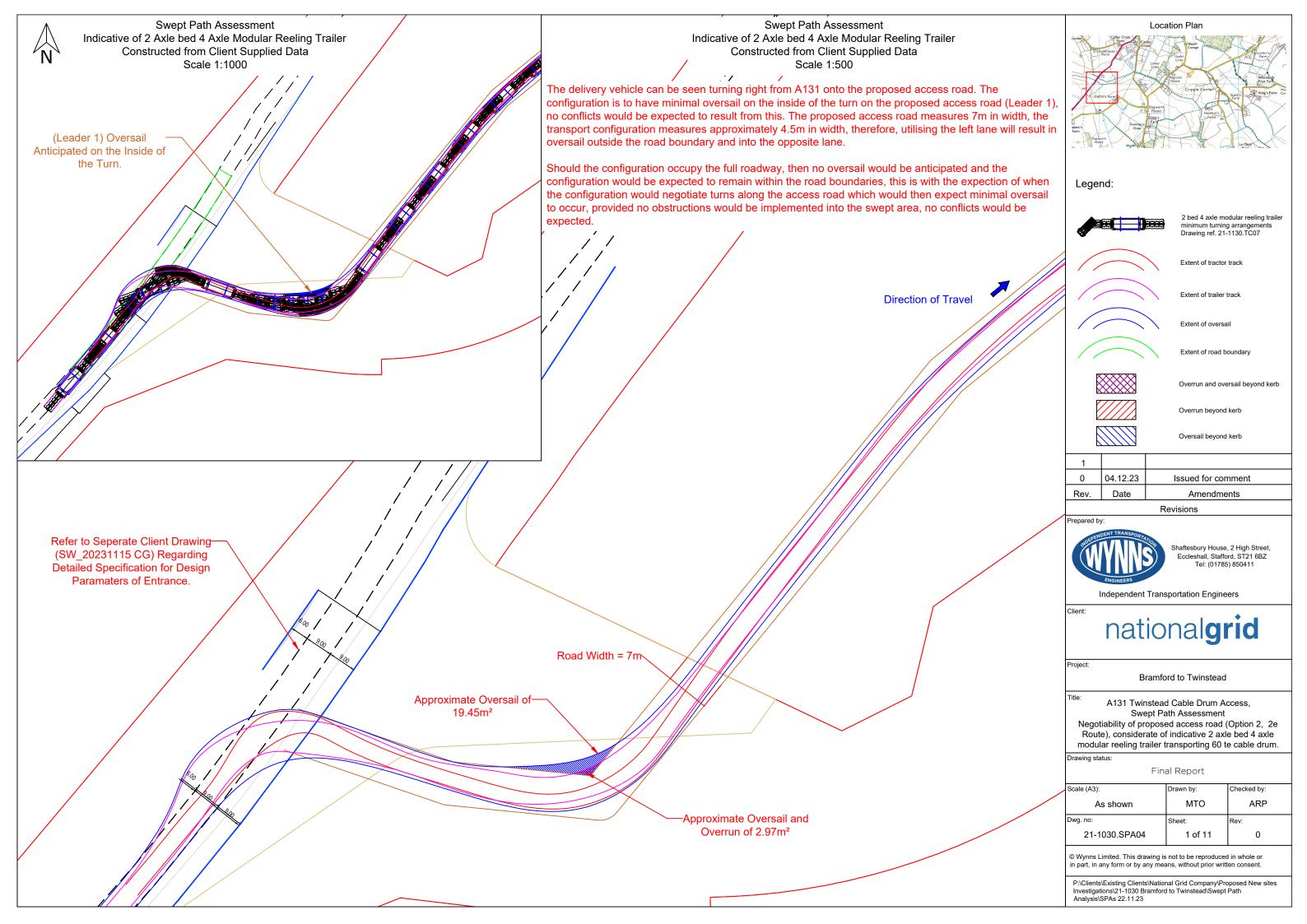
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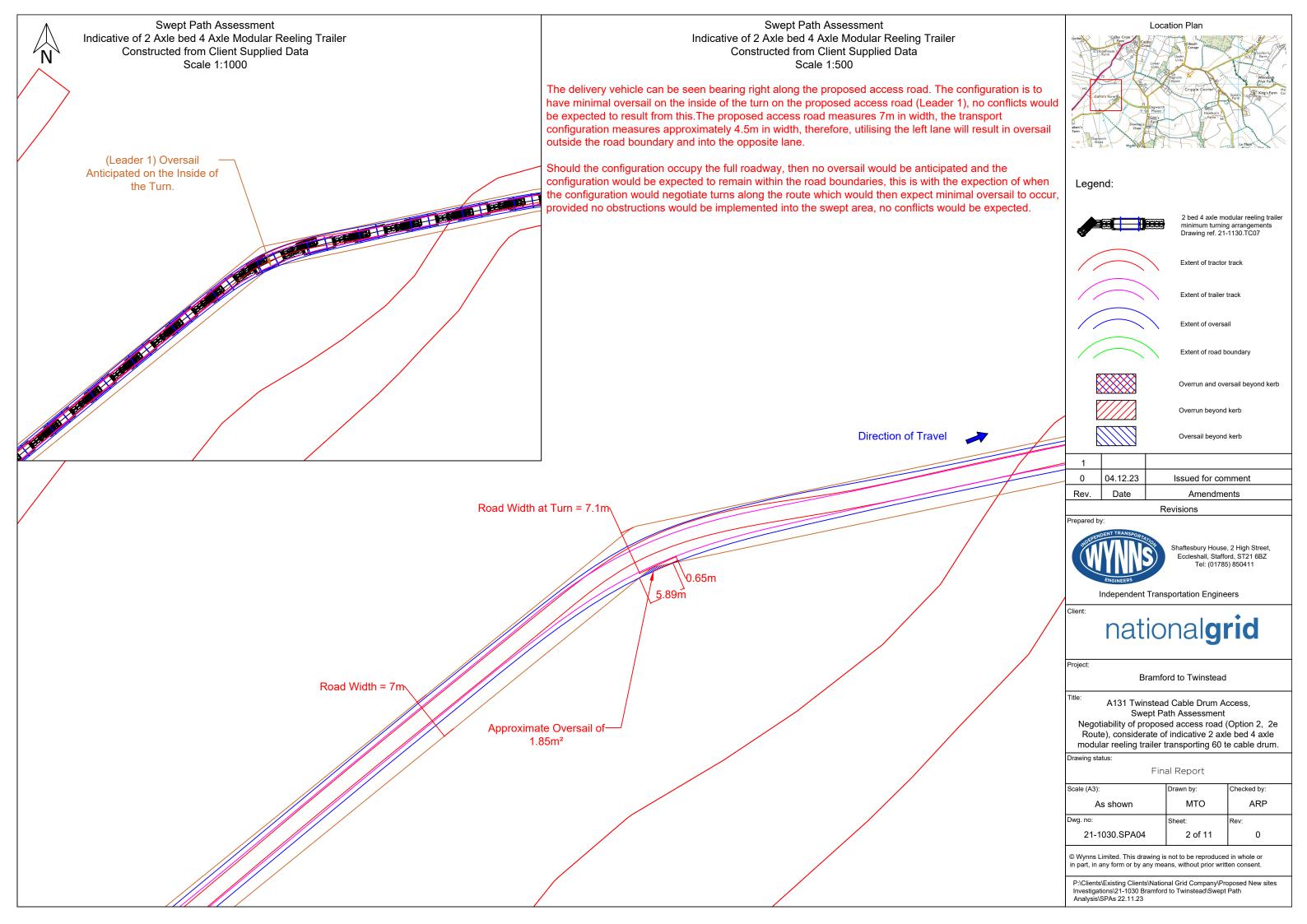
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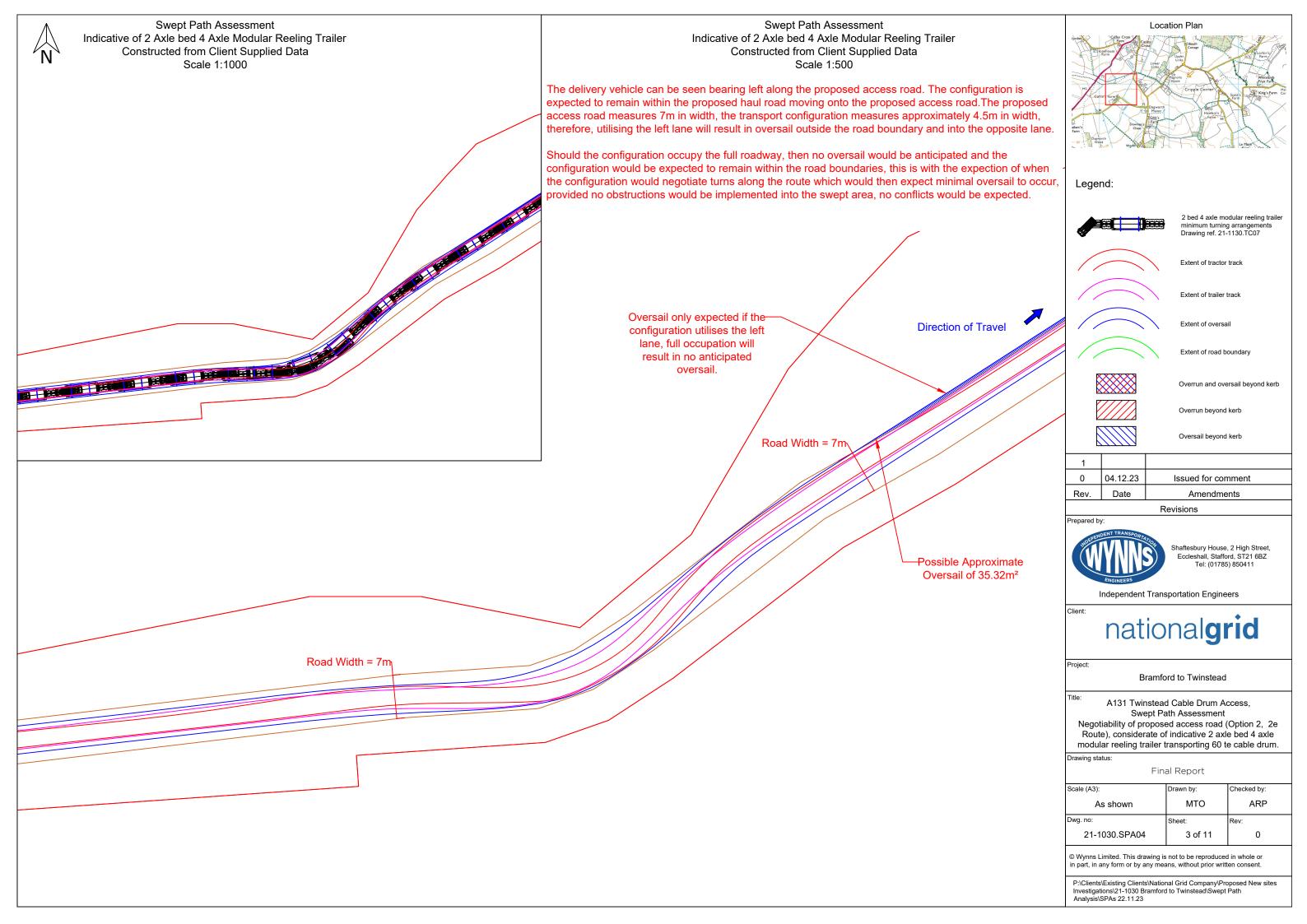
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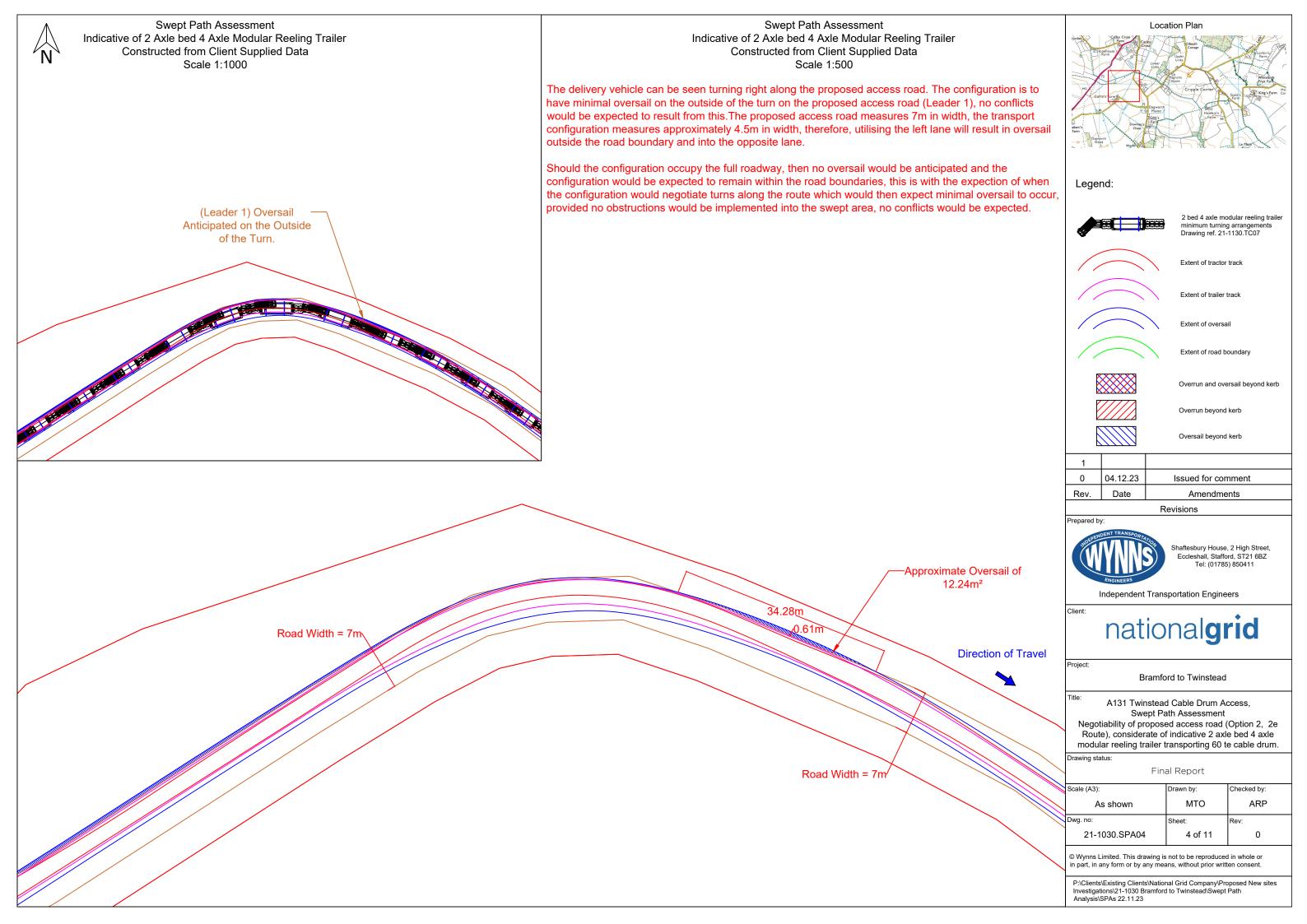
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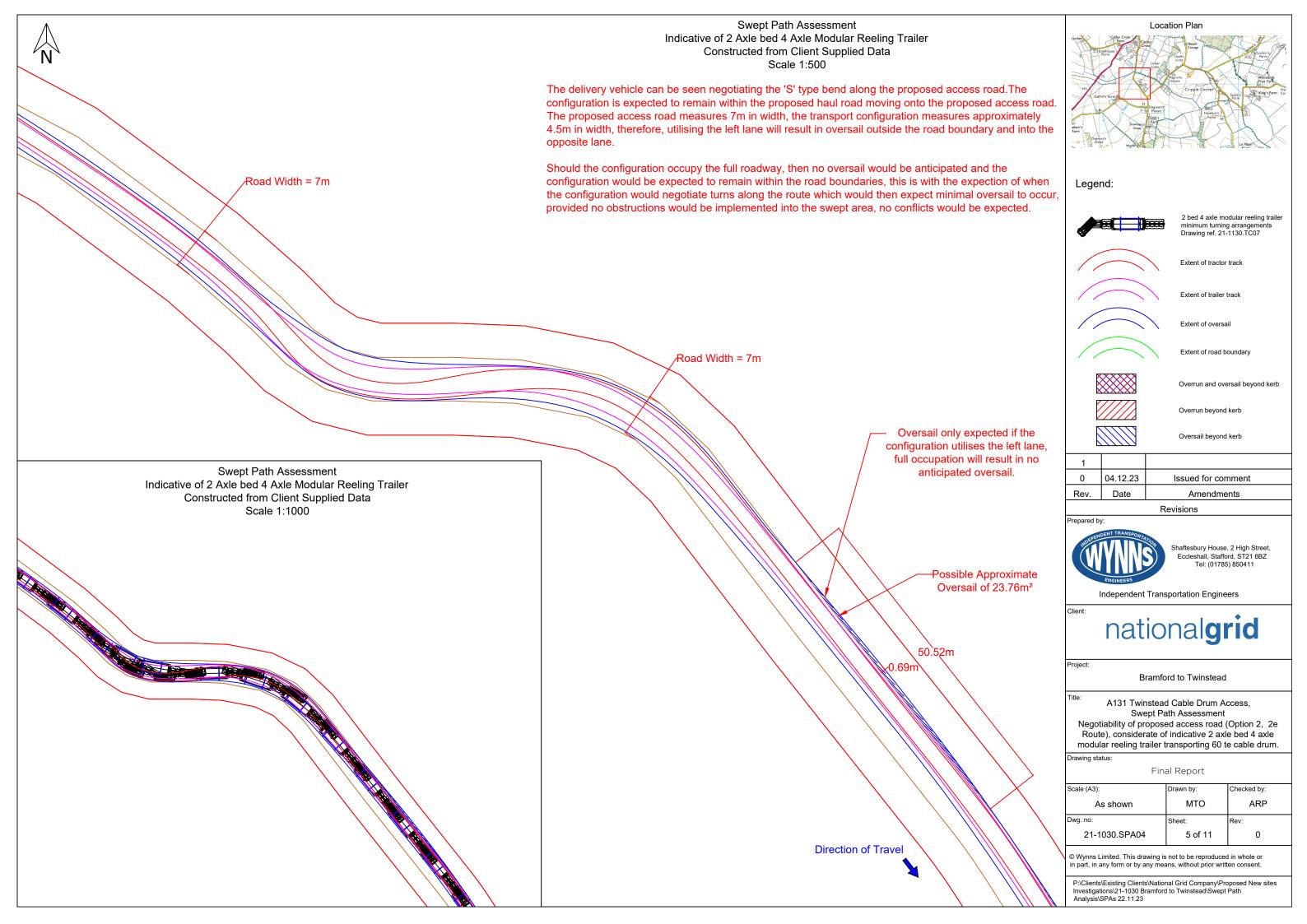
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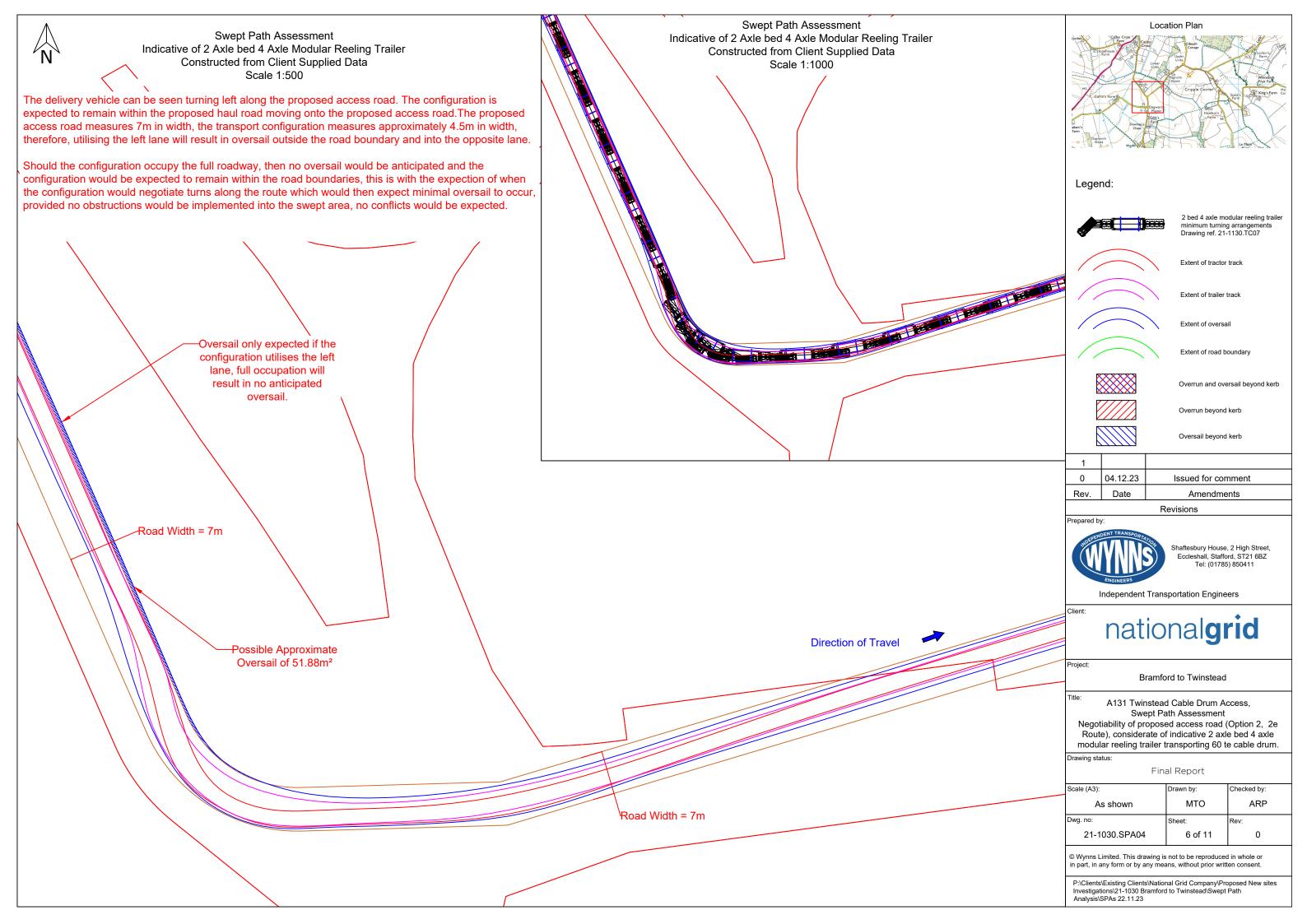


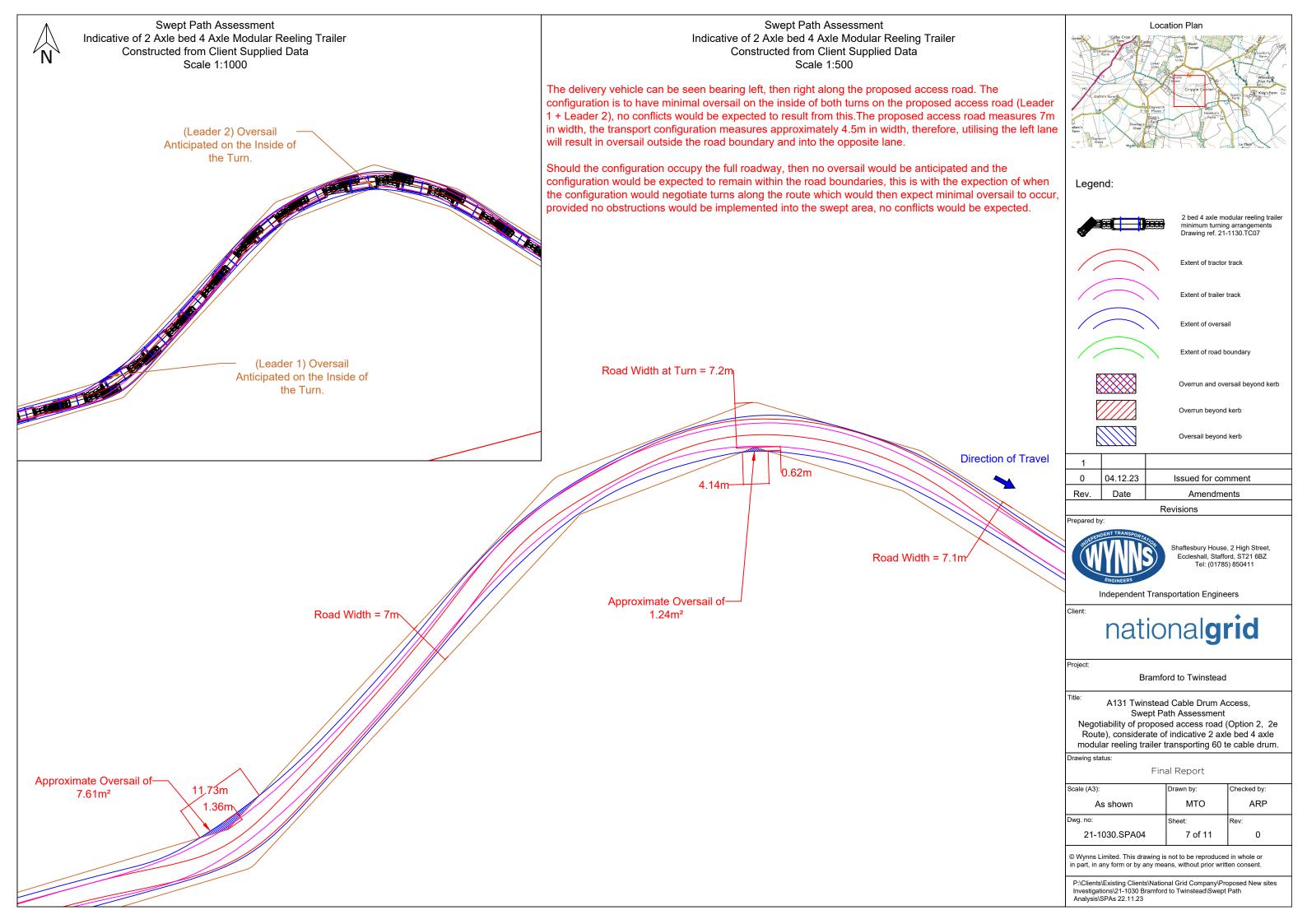


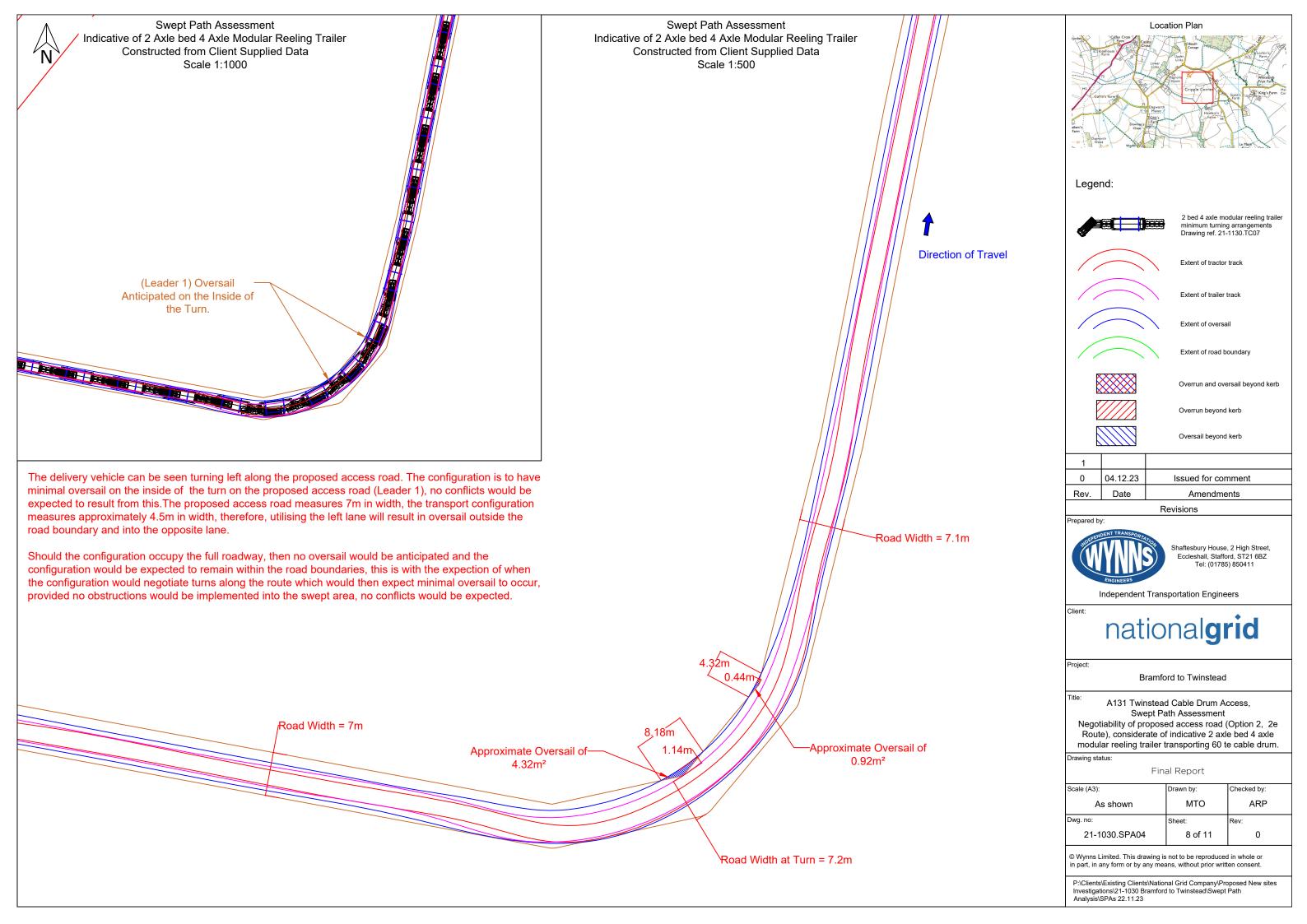


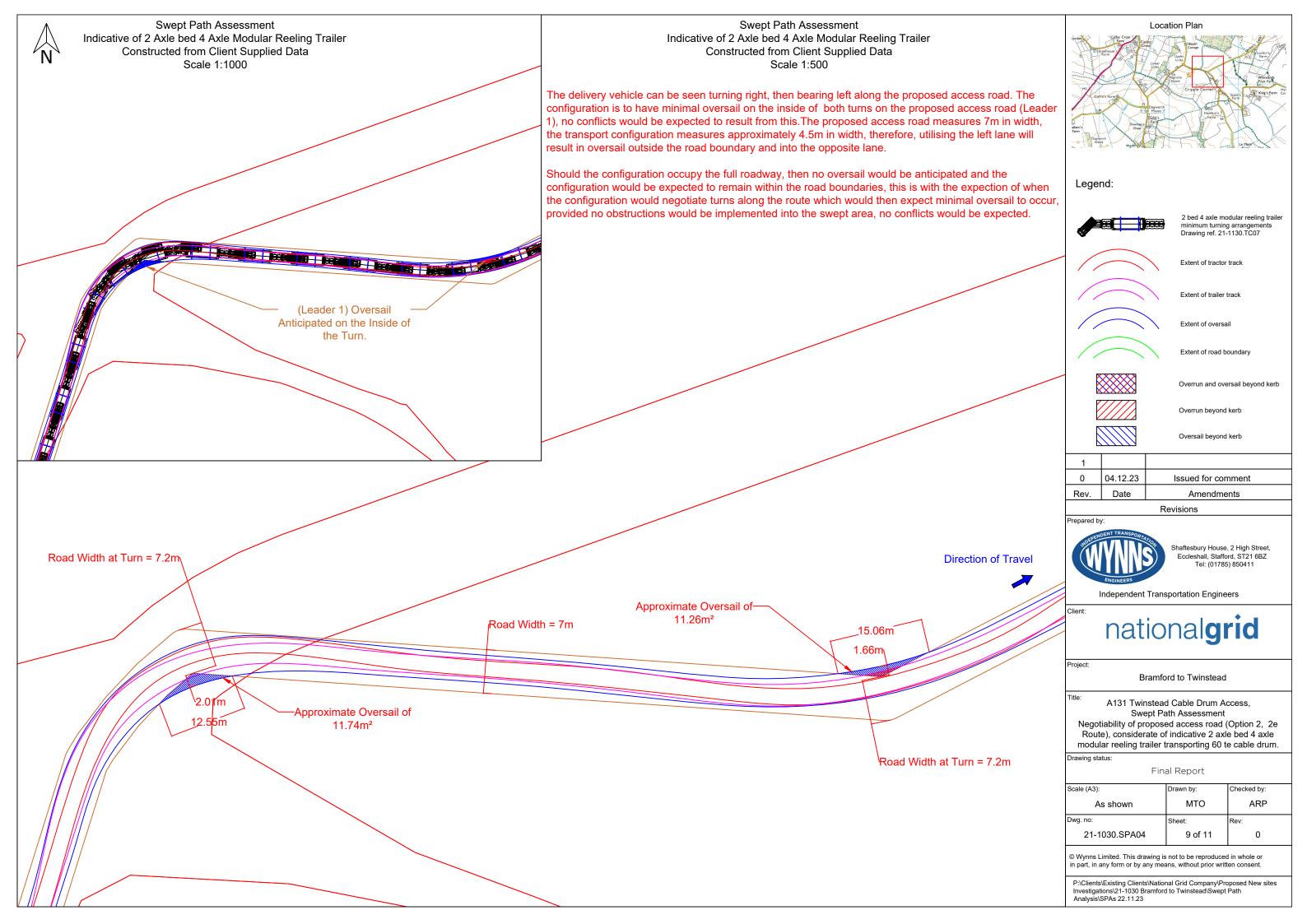


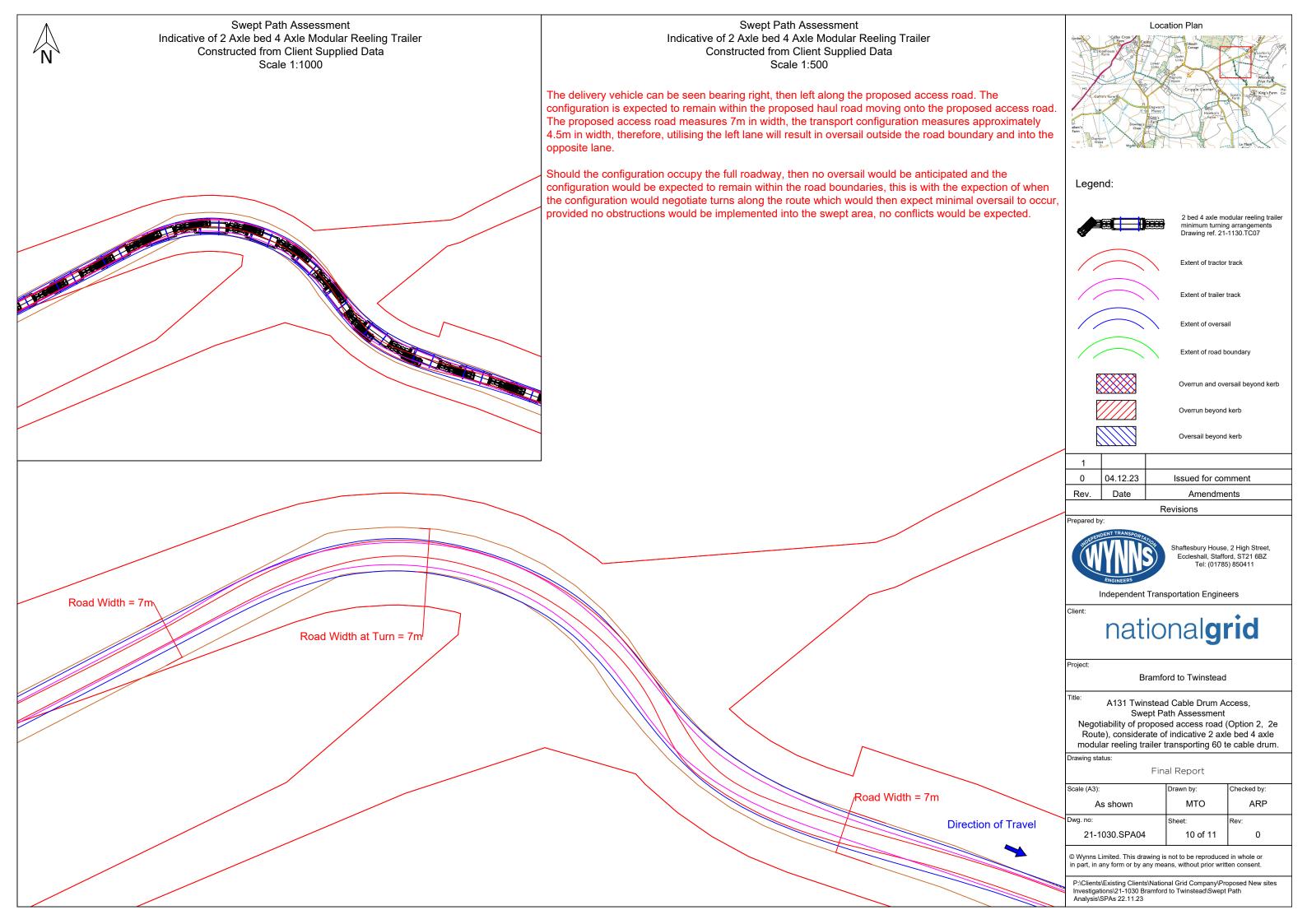














Swept Path Assessment Indicative of 2 Axle bed 4 Axle Modular Reeling Trailer Constructed from Client Supplied Data Scale 1:10000

NOTE: Overlay onto aerial image is not representative of the configuration relative to the environment. This is for illustrative purposes only, and should only be taken as such.







2 bed 4 axle modular reeling trailer minimum turning arrangements
Drawing ref. 21-1130.TC07



Extent of tractor track



Extent of oversail

Extent of road boundary

Extent of trailer track



Overrun and oversail beyond kerb



Overrun beyond kerb



04.12.23 Issued for comment Date Amendments

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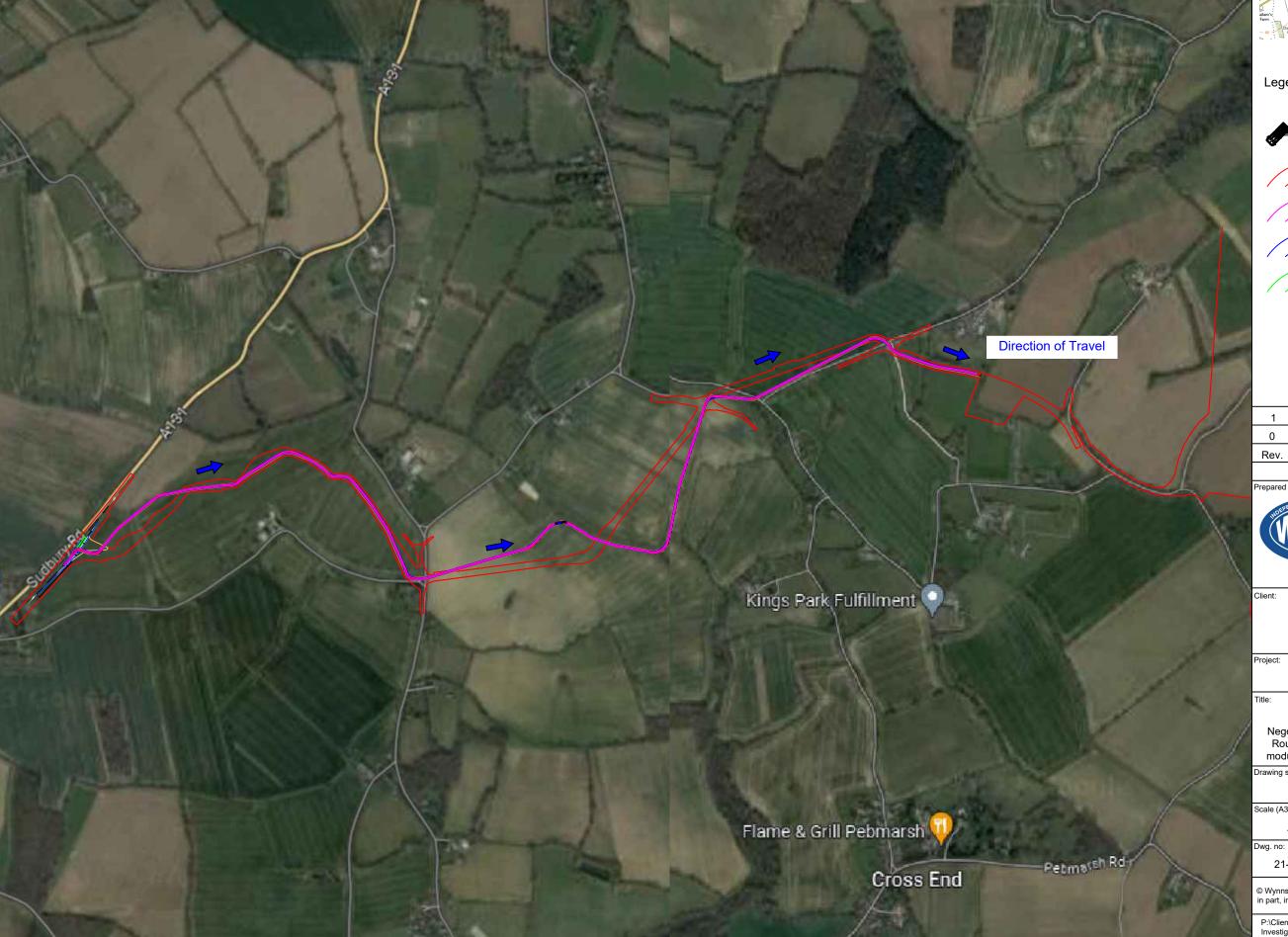
A131 Twinstead Cable Drum Access, Swept Path Assessment Negotiability of proposed access road (Option 2, 2e Route), considerate of indicative 2 axle bed 4 axle modular reeling trailer transporting 60 te cable drum.

Final Report

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Appendix B Abnormal Indivisible Load Swept Path Assessment (Option 3d)



Bramford to Twinstead - Option 3 3d - Abnormal Indivisible Load Swept Path Assessment Considerate of 60te Cable Drum Delivery

Prepared for National Grid





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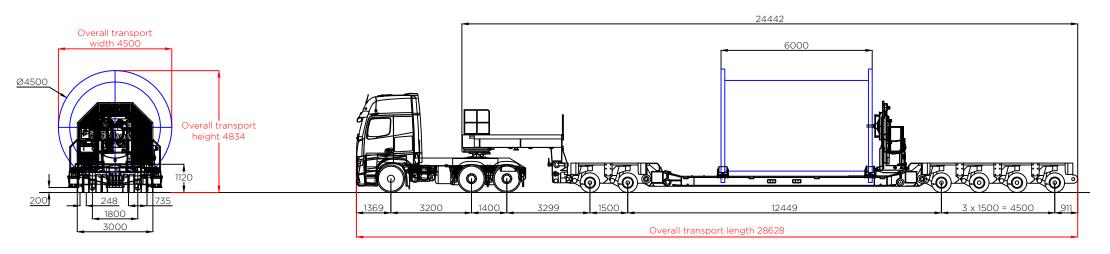
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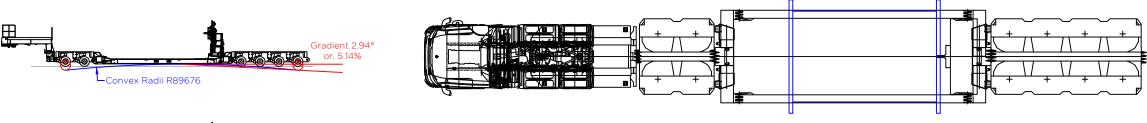
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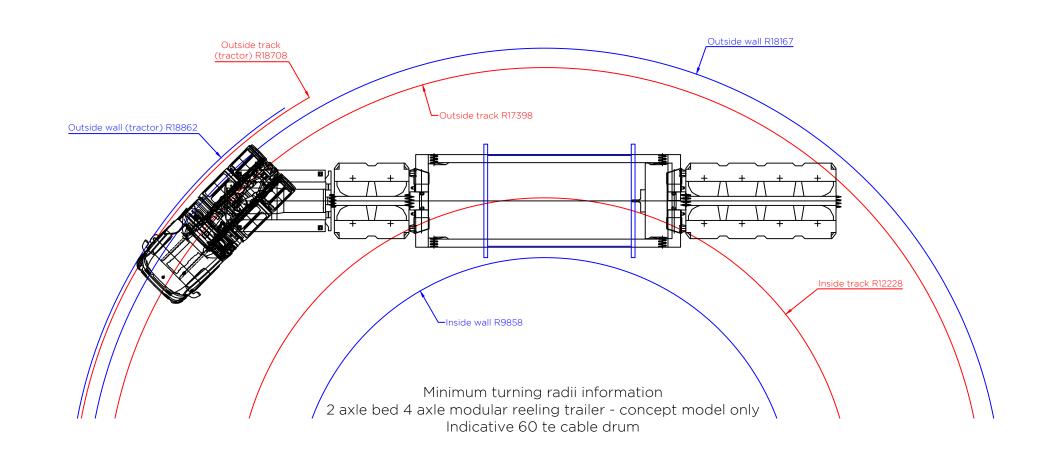
Profile view

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Elevation view - 2 axle bed 4 axle modular reeling trailer - concept model only Indicative 60 te cable drum



Plan view - 2 axle bed 4 axle modular reeling trailer - concept model only Indicative 60 te cable drum



Load table				
4 axle modular reeling trailer				
Self weight of cable drum	60.0 te			
Self weight of trailer	39.6 te			
Self weight of tractor	12.0 te			
Total combined weight	111.6 te			
Max. load per axle line (trailer)	14.12 te			
Load per axle	7.06 te			
Load per wheel (4 per axle)	1.77 te			
Max. overall ground bearing pressure (trailer)	4.77 te/m²			
Tractor (12 te)				

Tractor	(12 te,)
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Front steer	8.1 te
Rear axle	12.7 te
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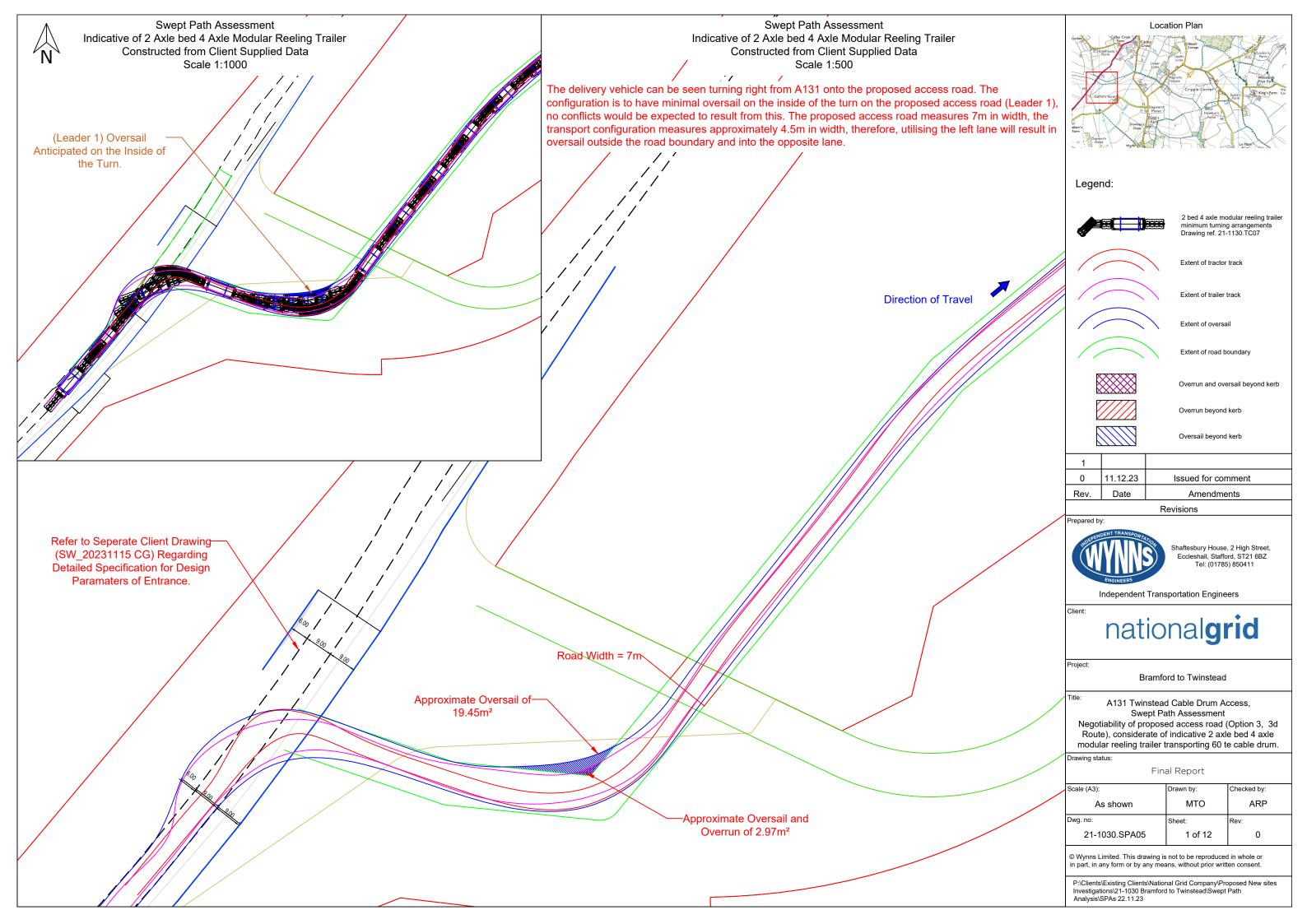
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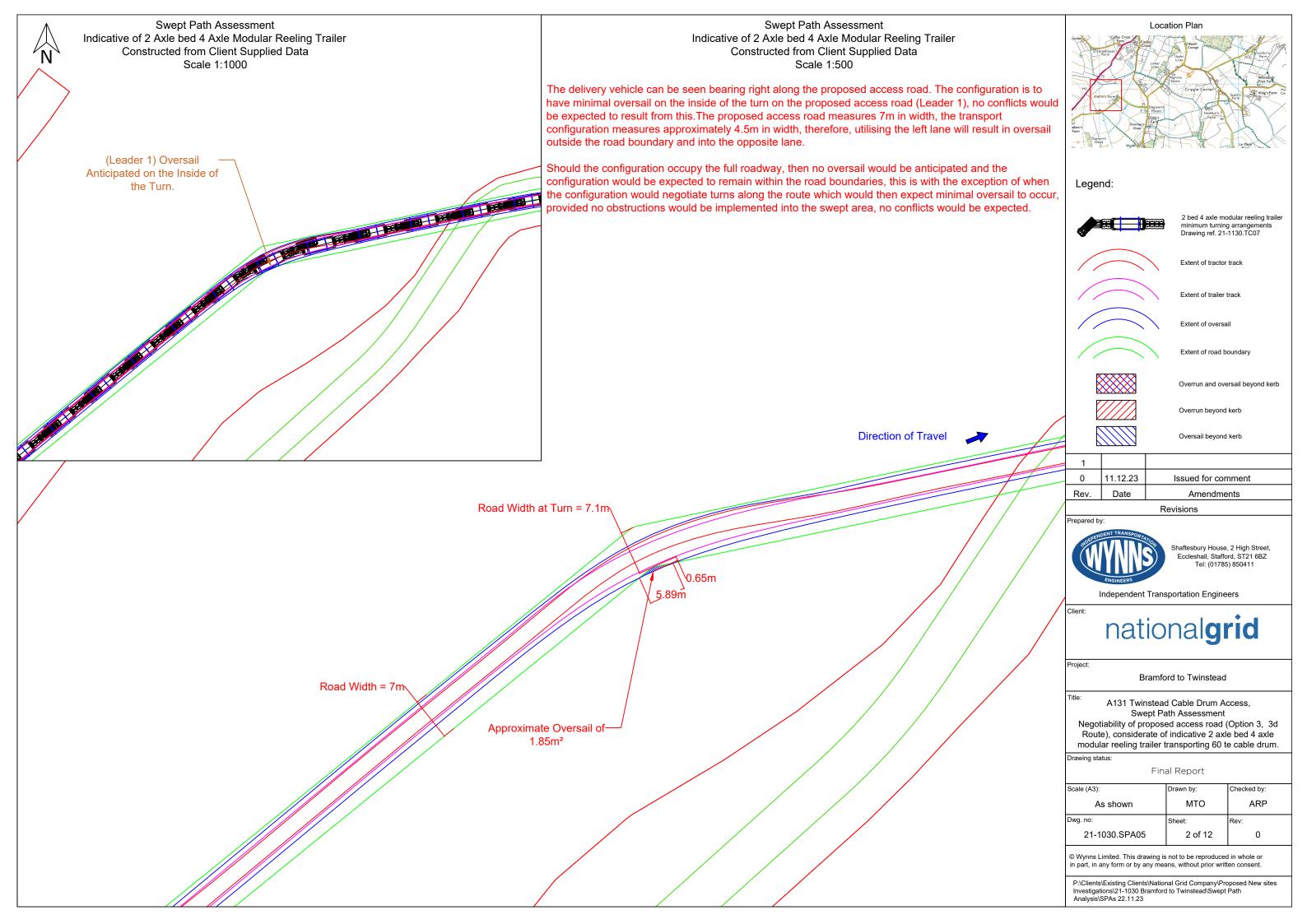
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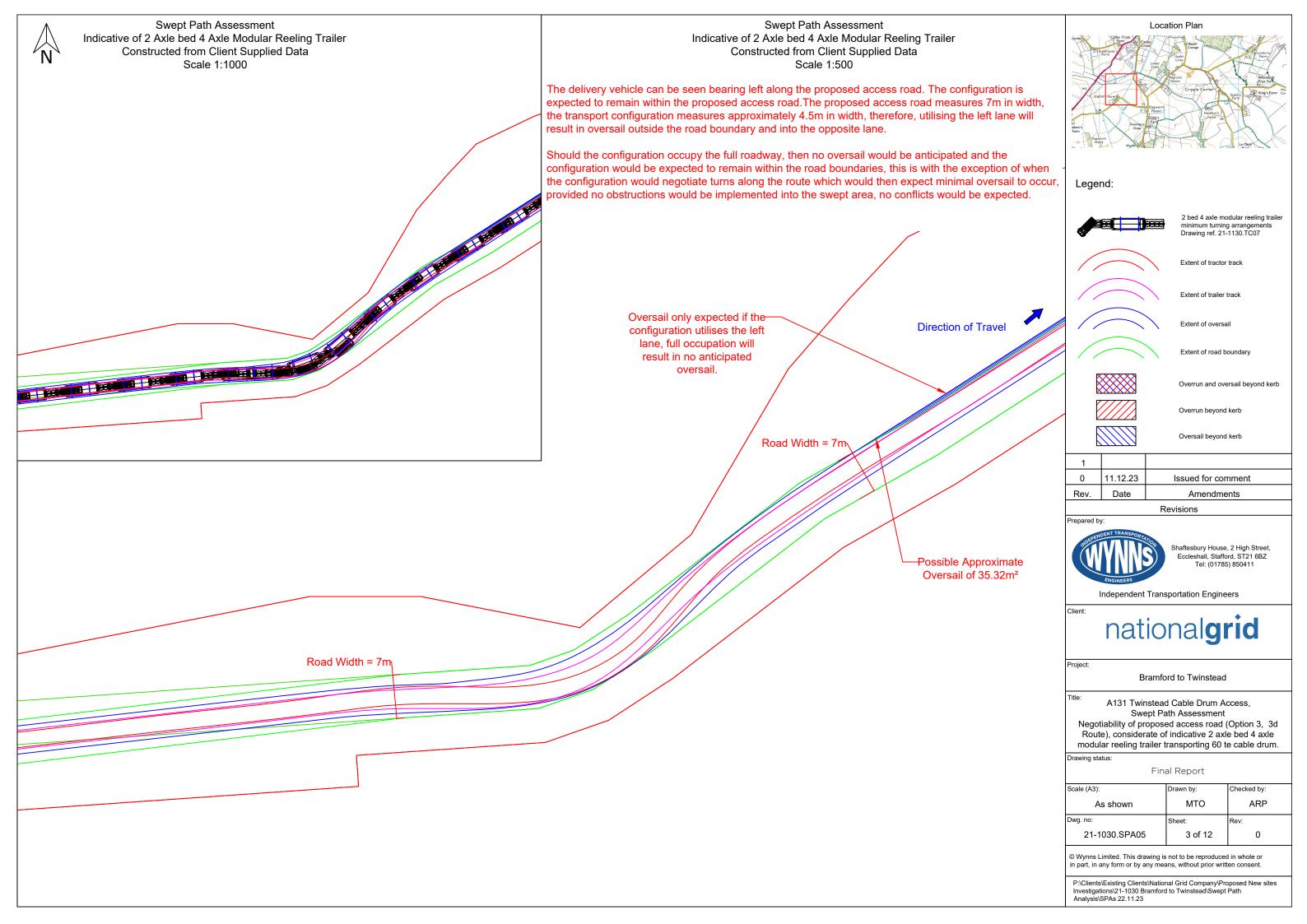
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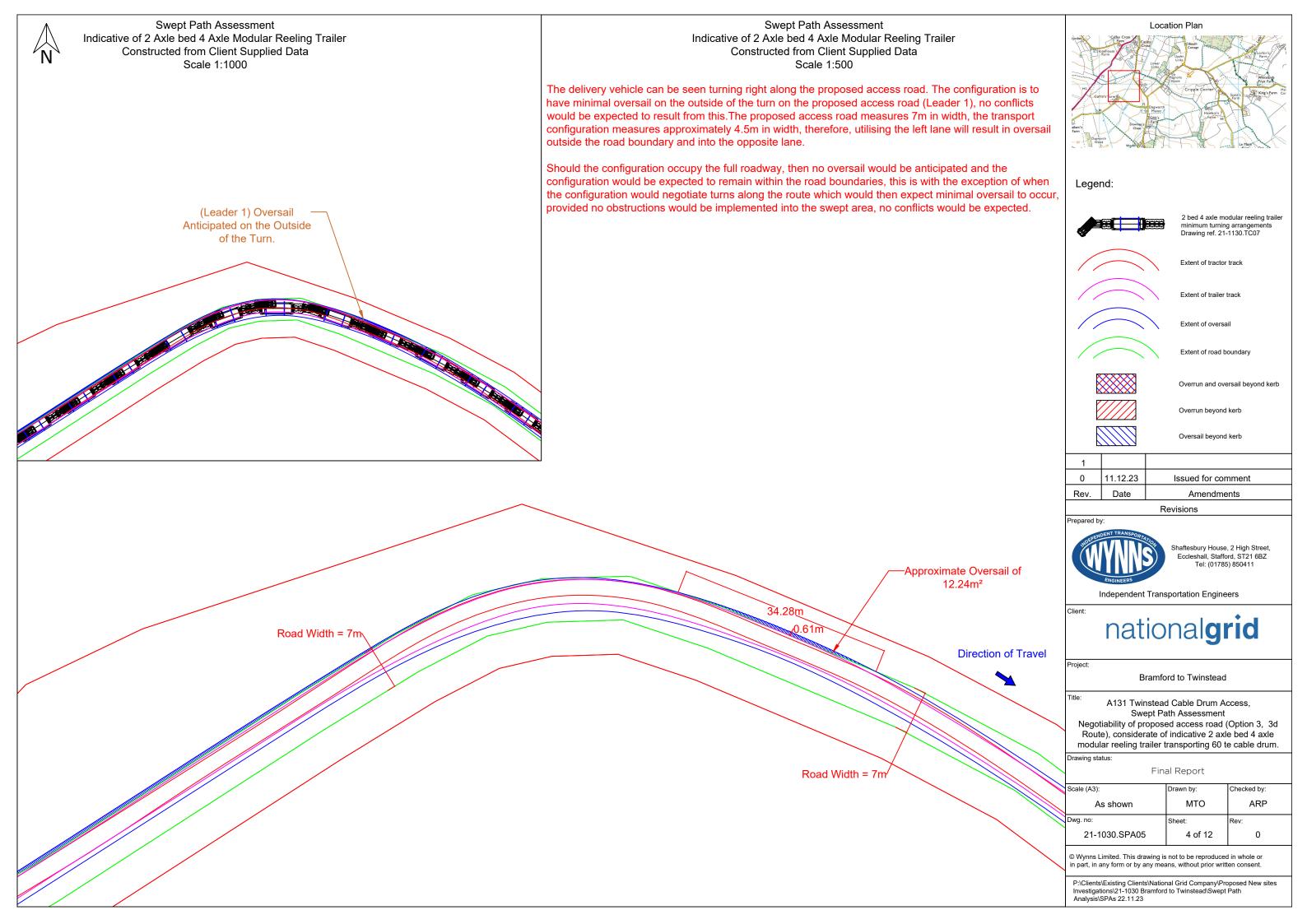
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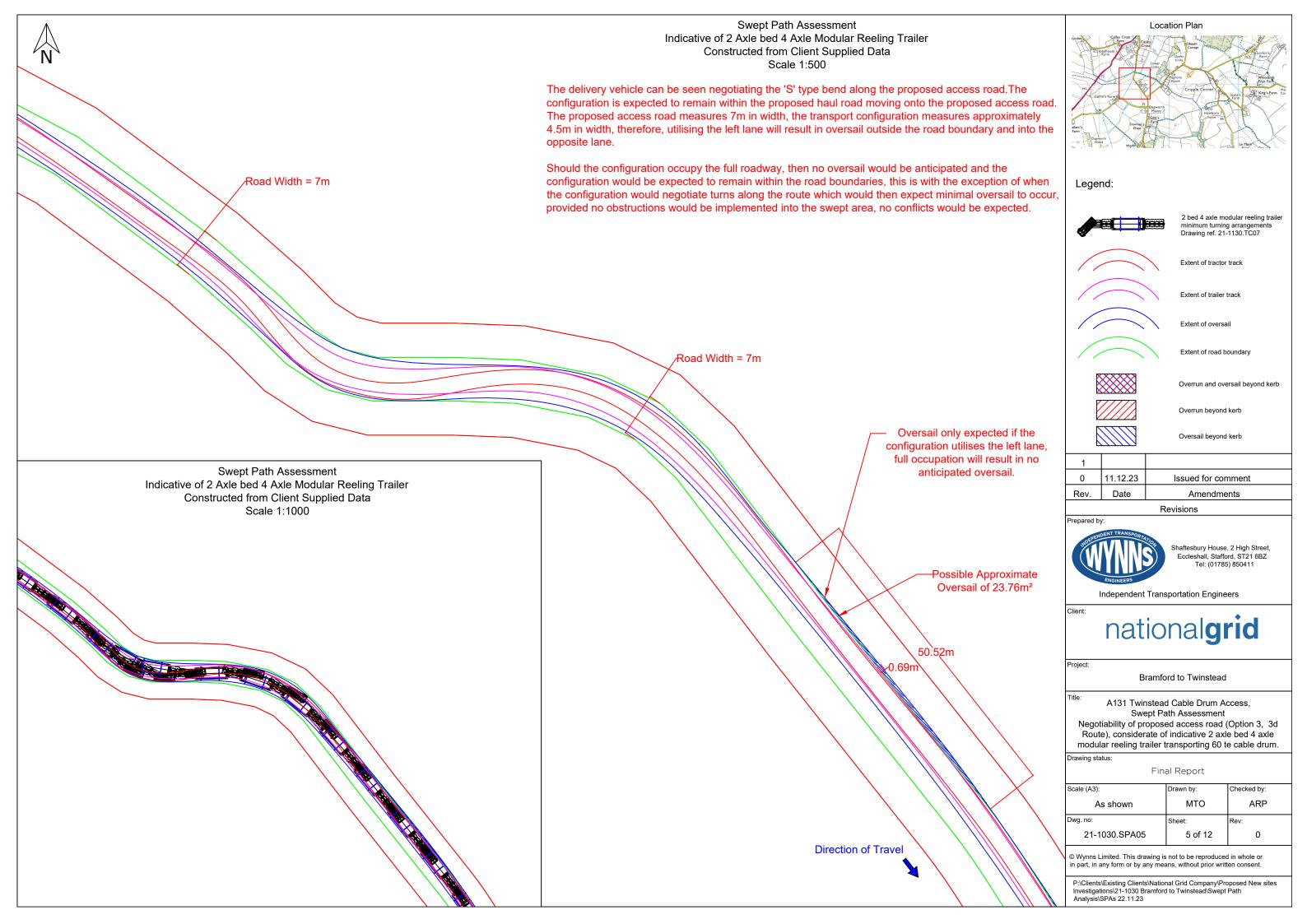
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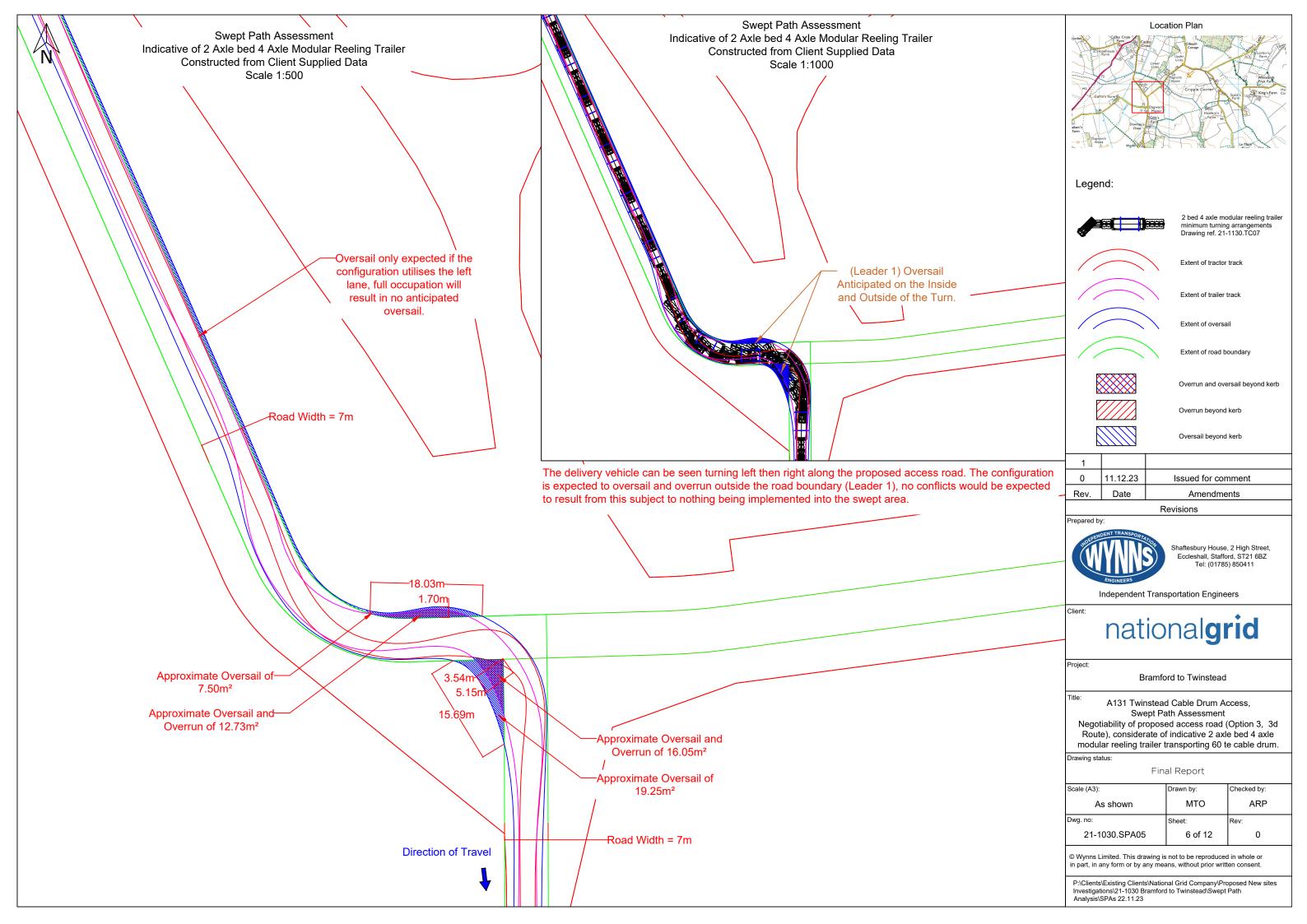


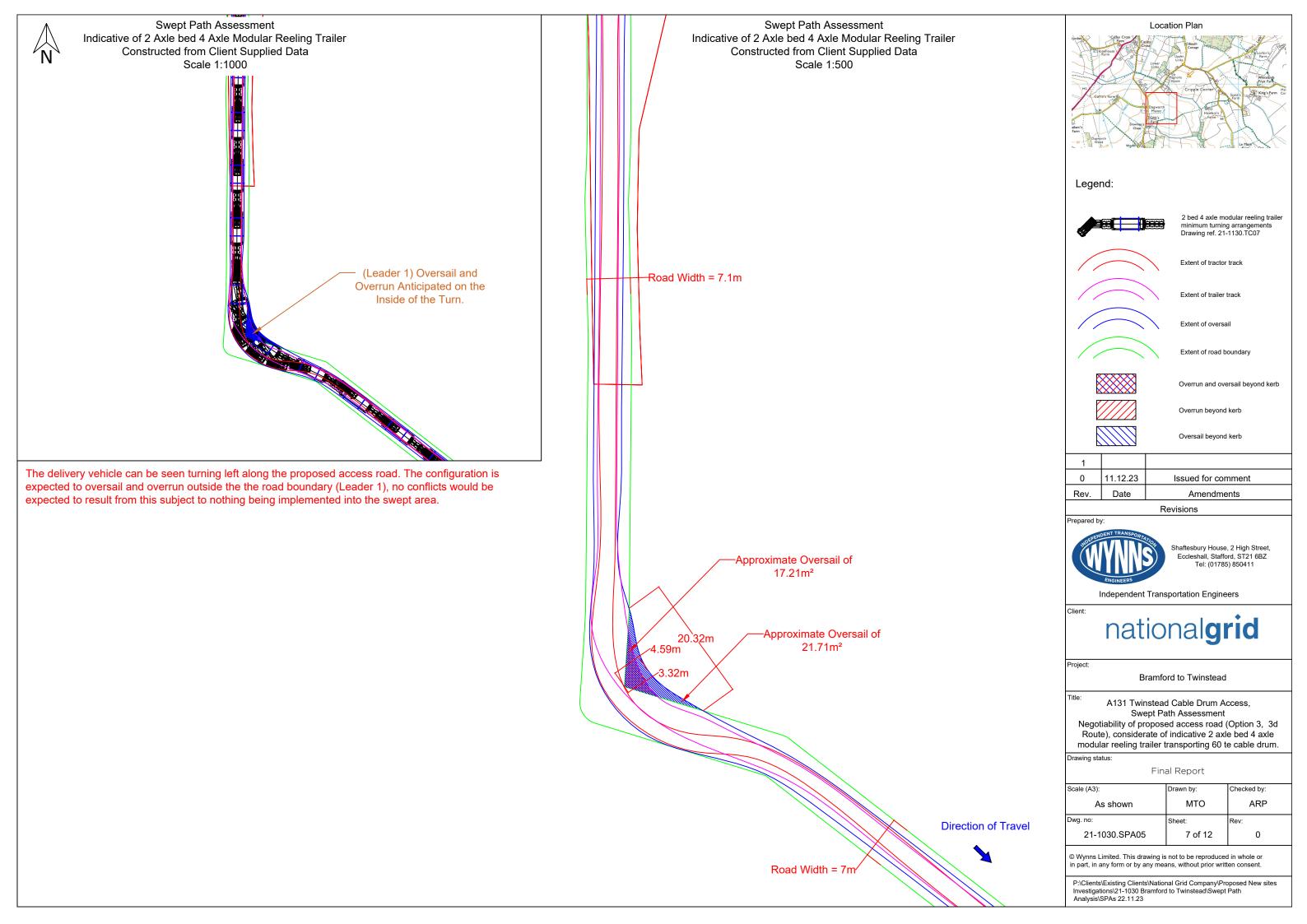


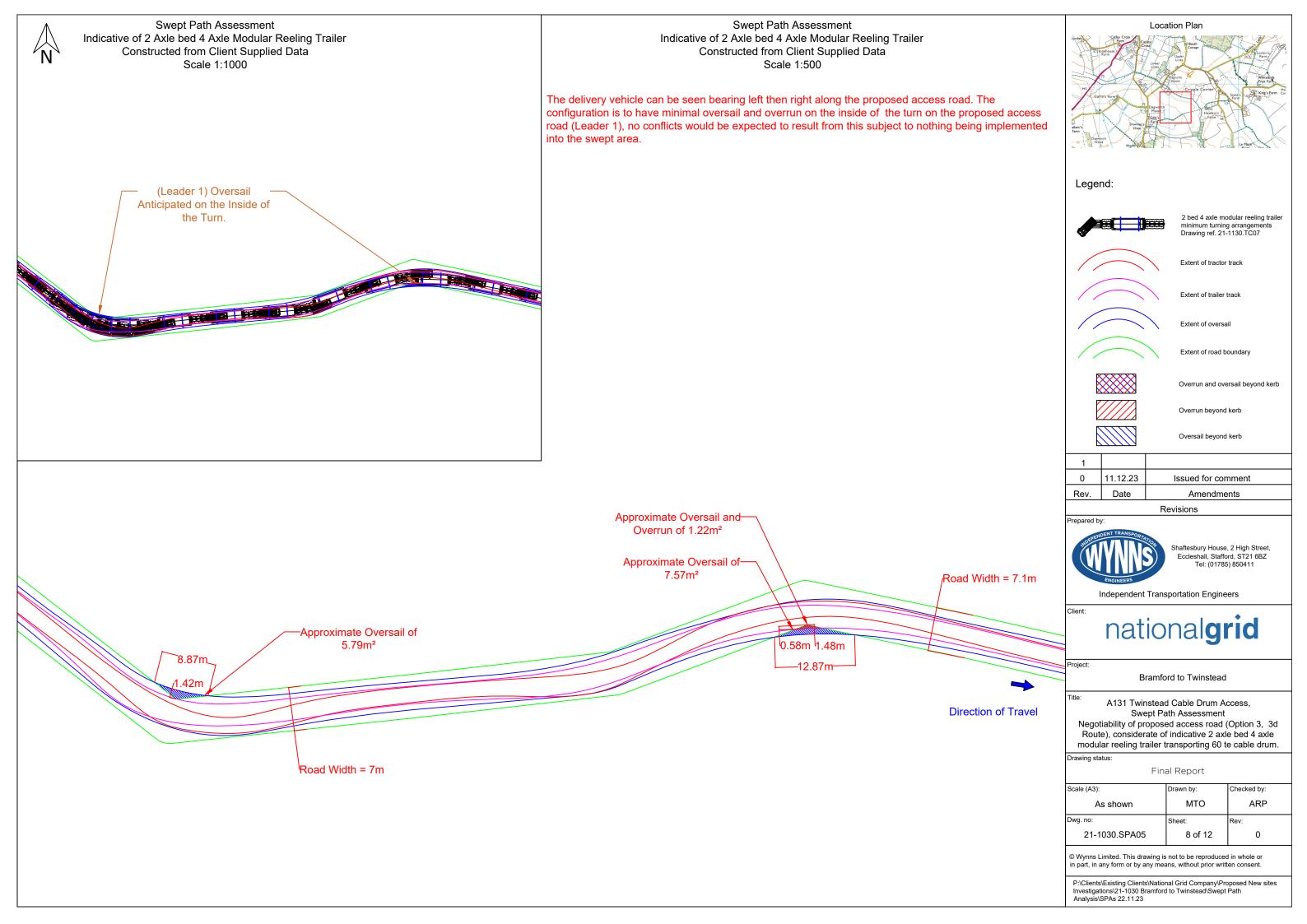


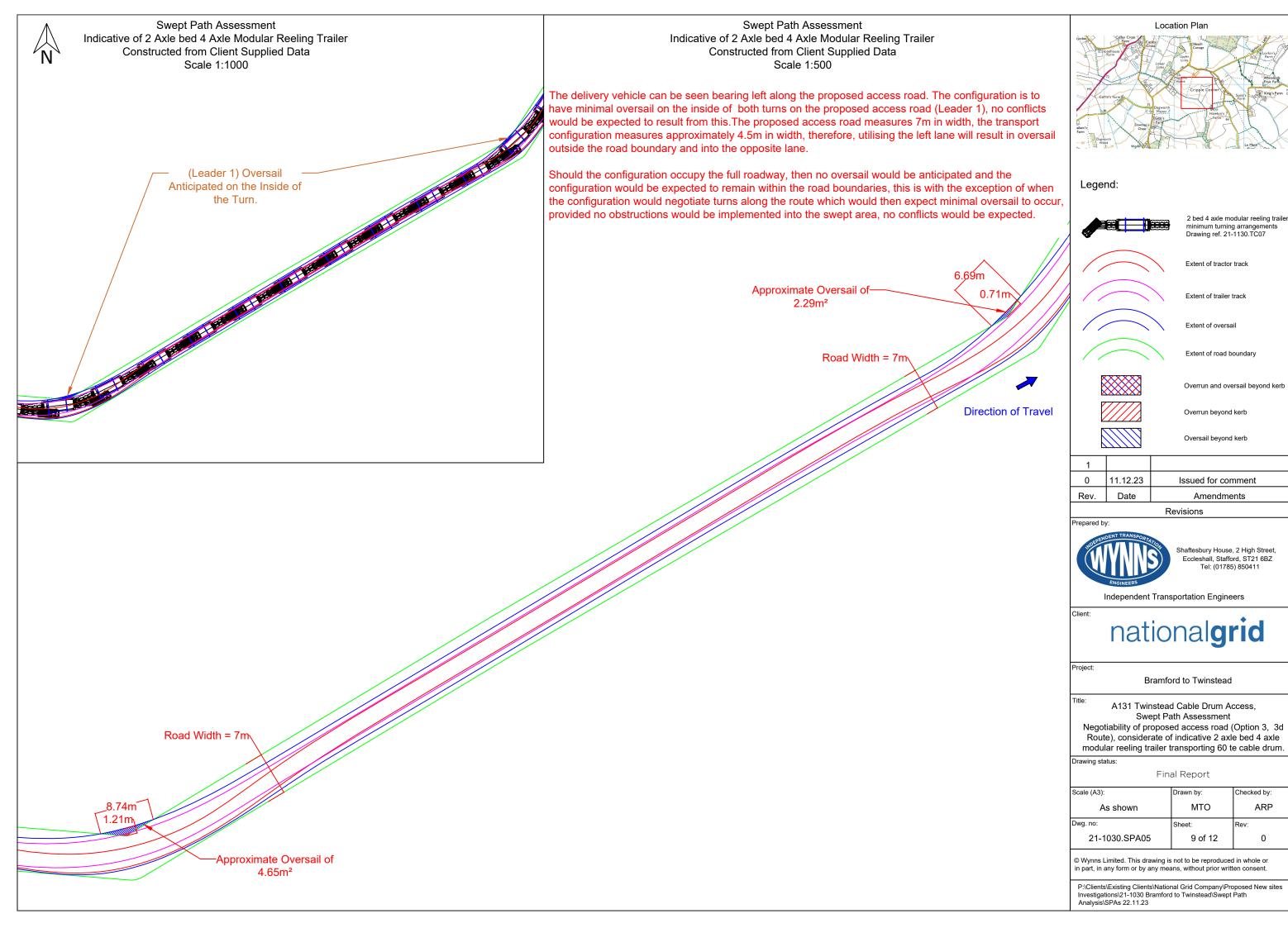






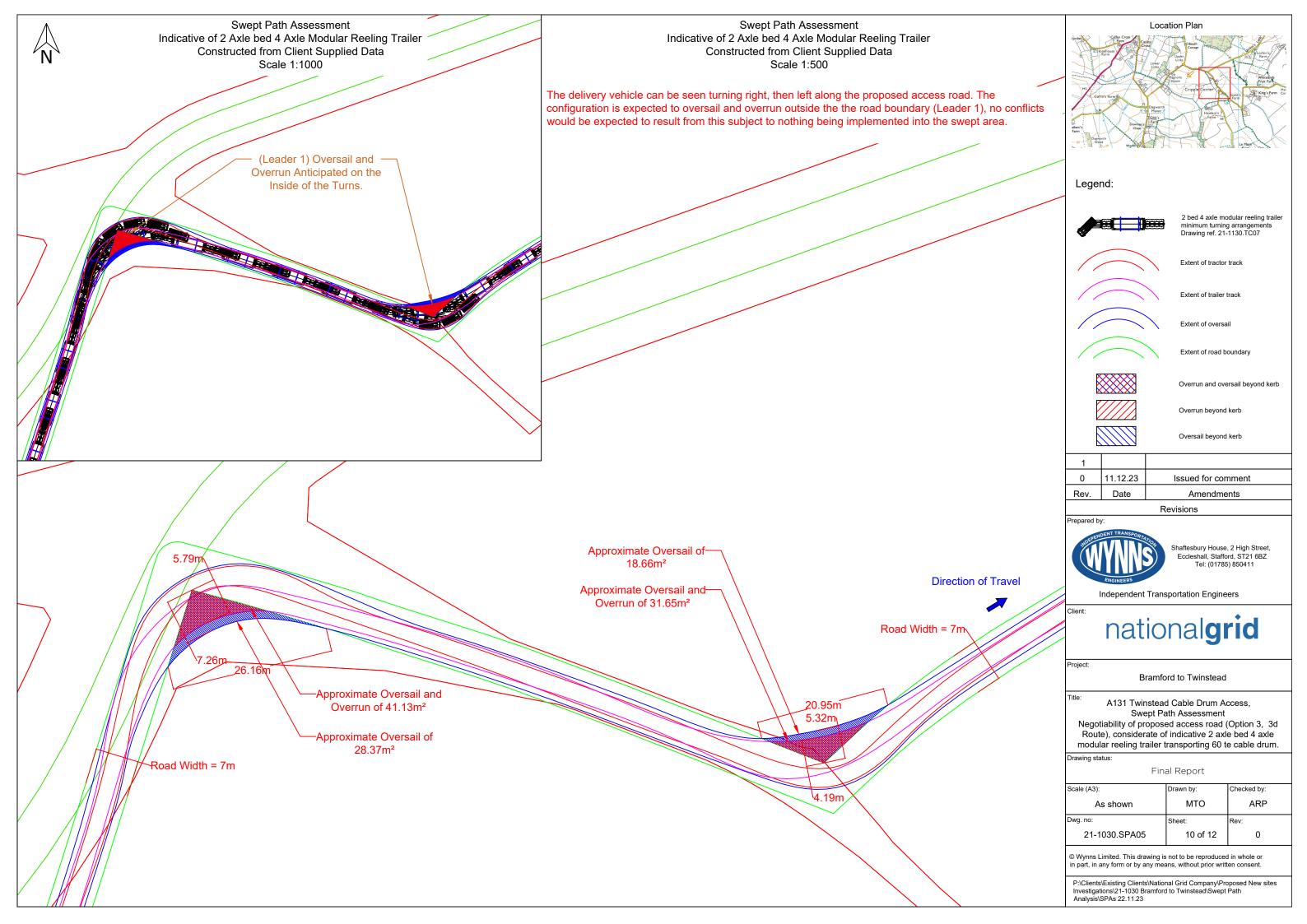


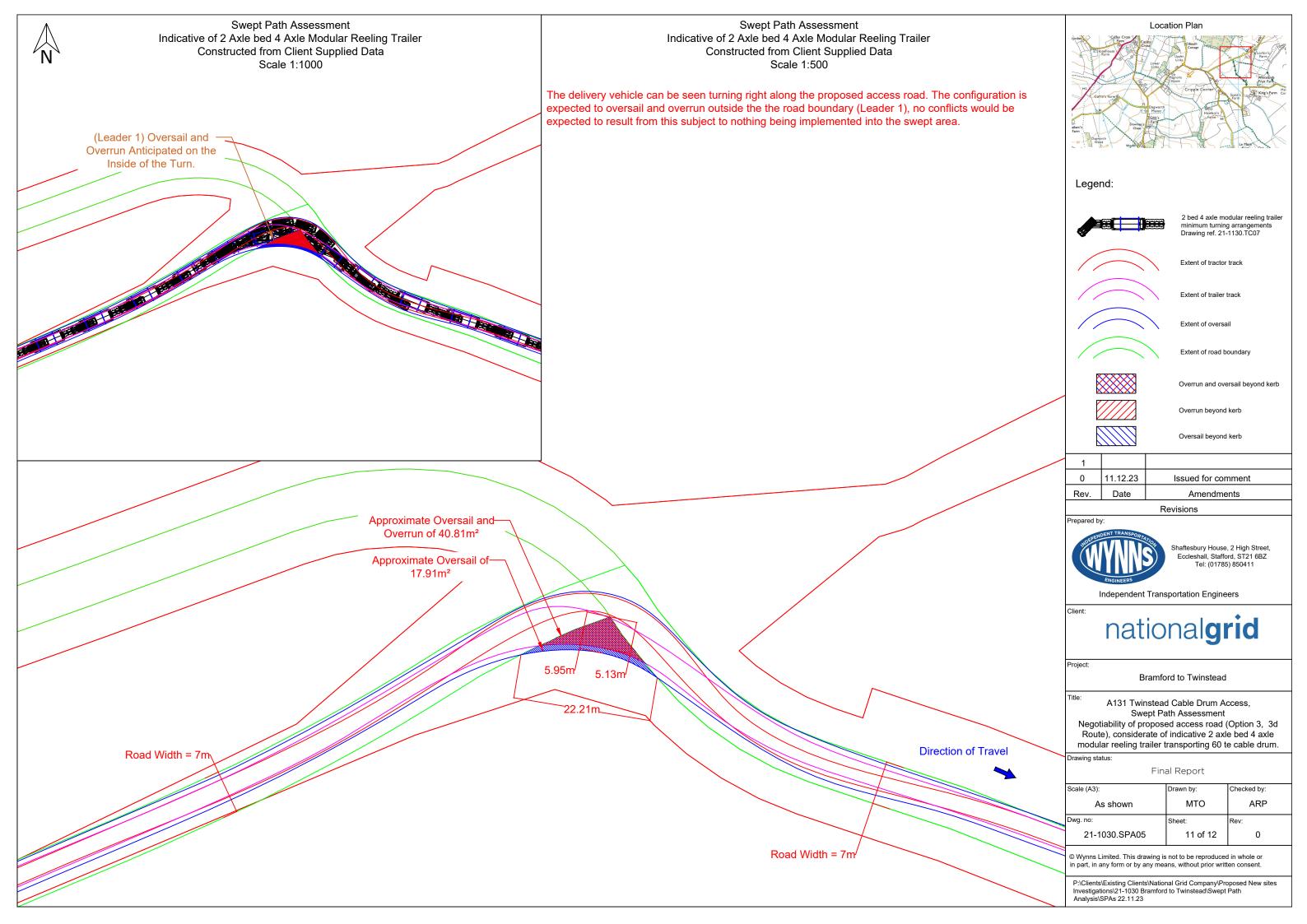




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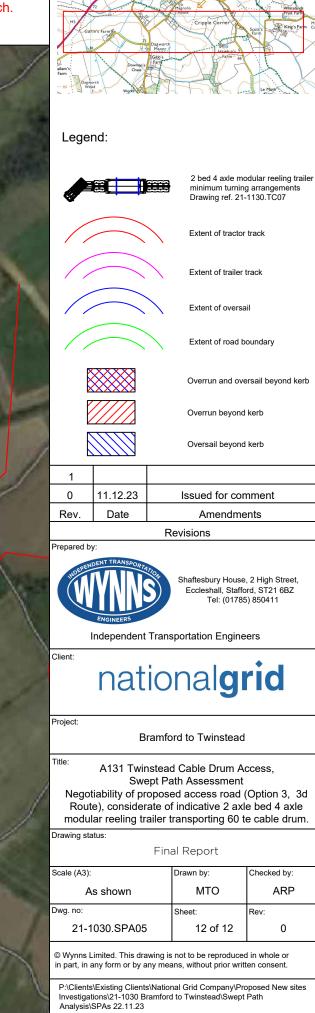




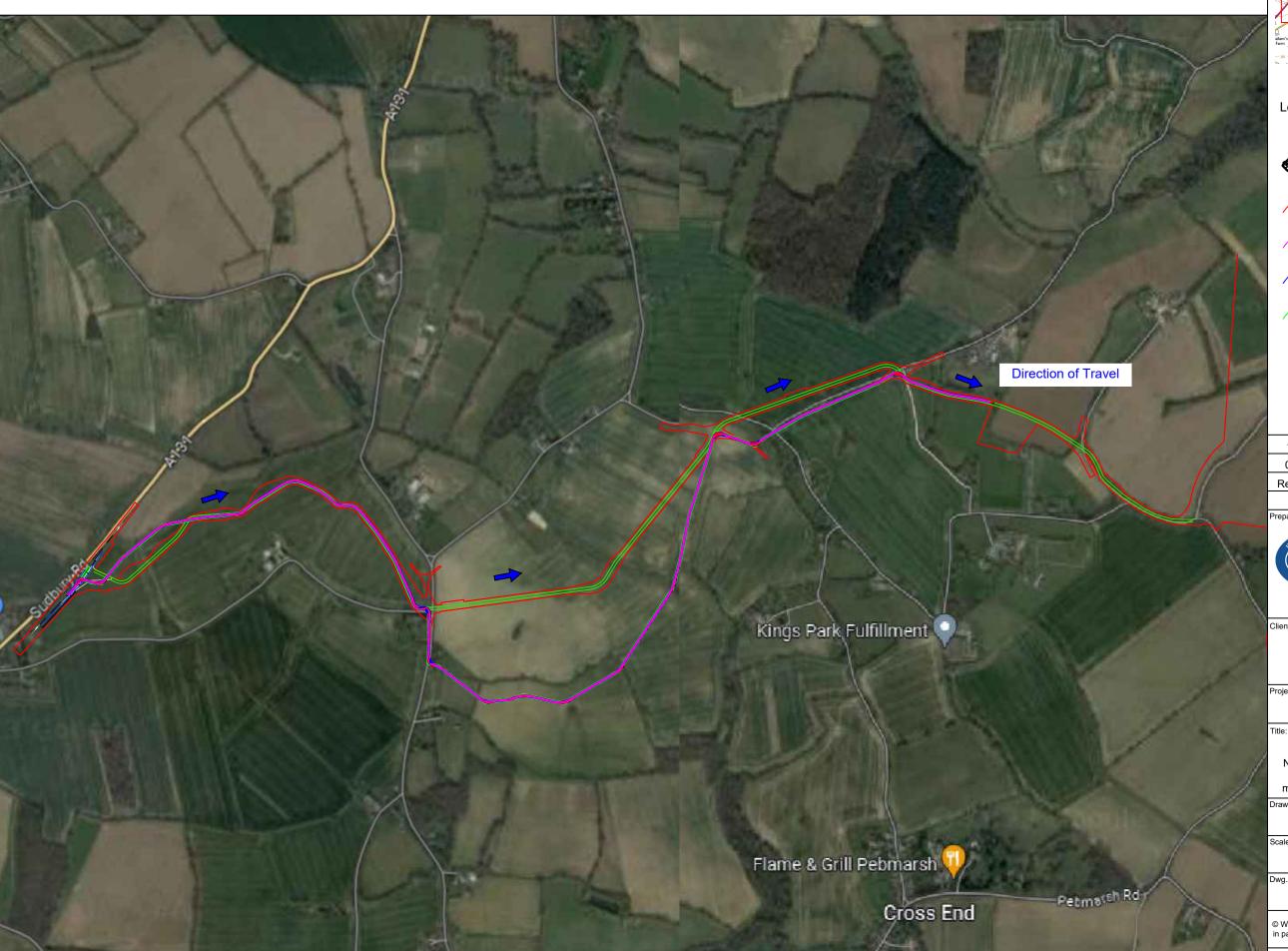


Swept Path Assessment
Indicative of 2 Axle bed 4 Axle Modular Reeling Trailer
Constructed from Client Supplied Data
Scale 1:10000

NOTE: Overlay onto aerial image is not representative of the configuration relative to the environment. This is for illustrative purposes only, and should only be taken as such.



Location Plan



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