REPORT

Proposed AD Plant, Bressingham

Transport Statement Part 2 of 2

Client: Storengy UK

Reference: PC4115-RHD-ZZ-XX-RP-Z-0002

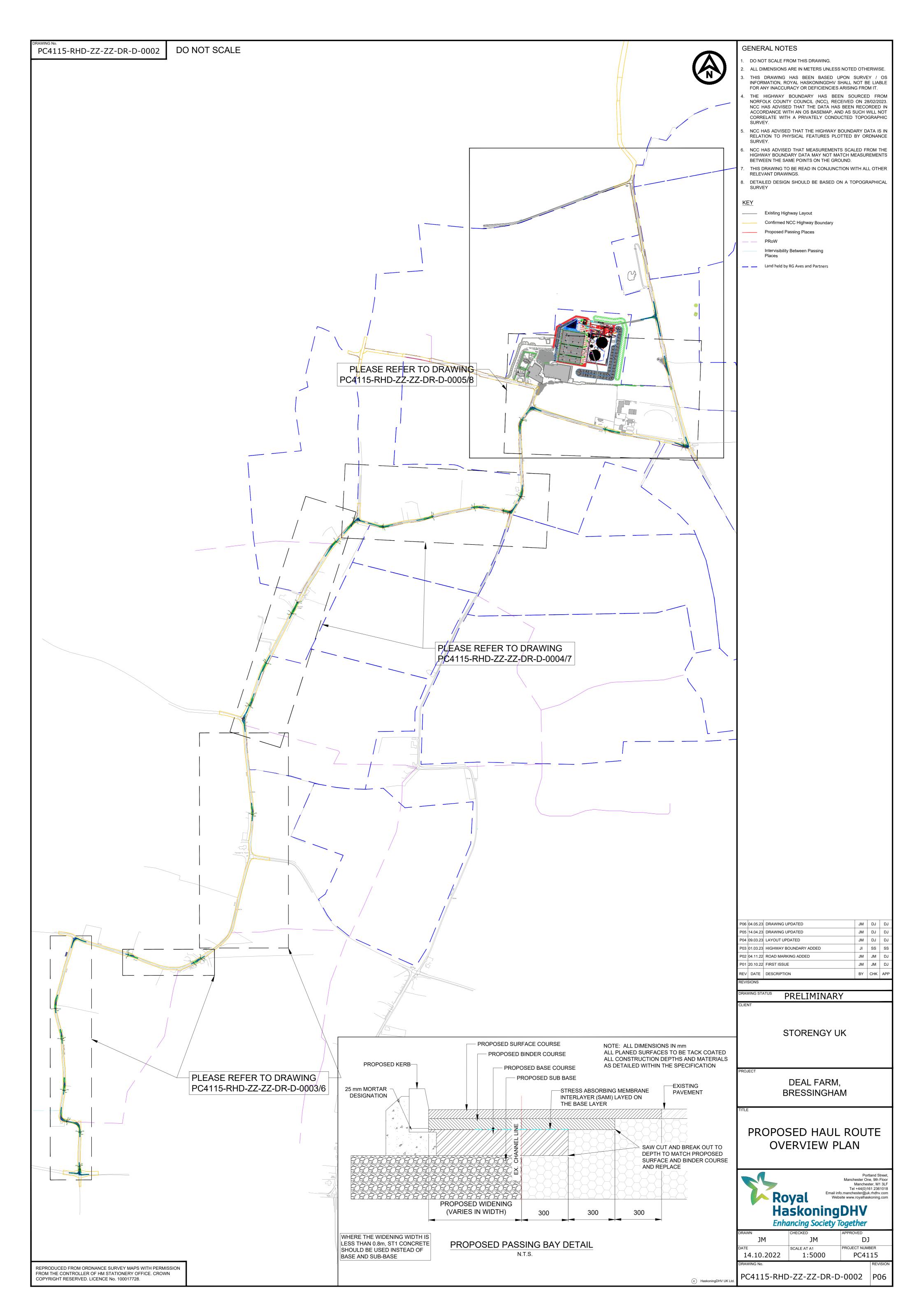
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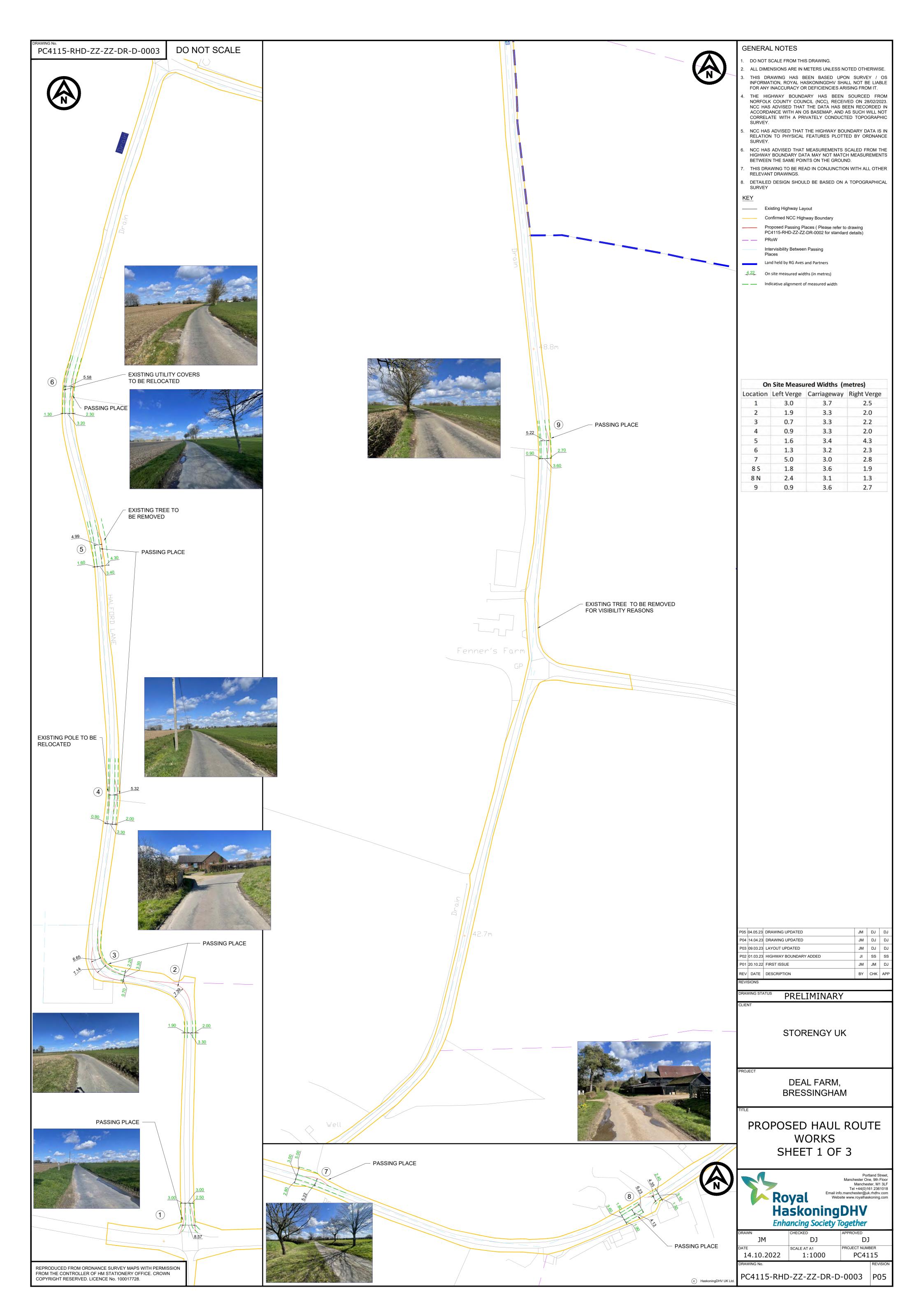
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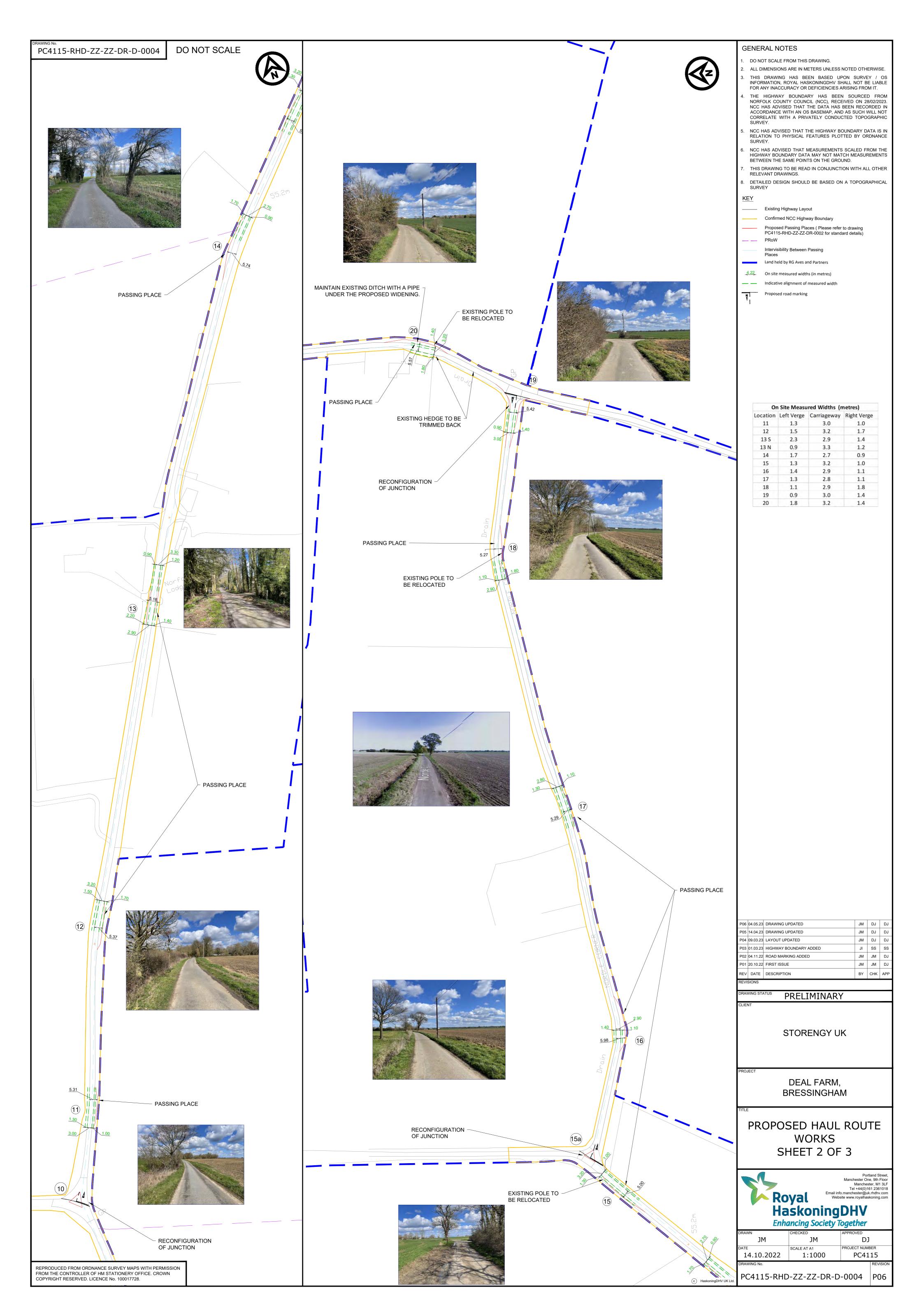


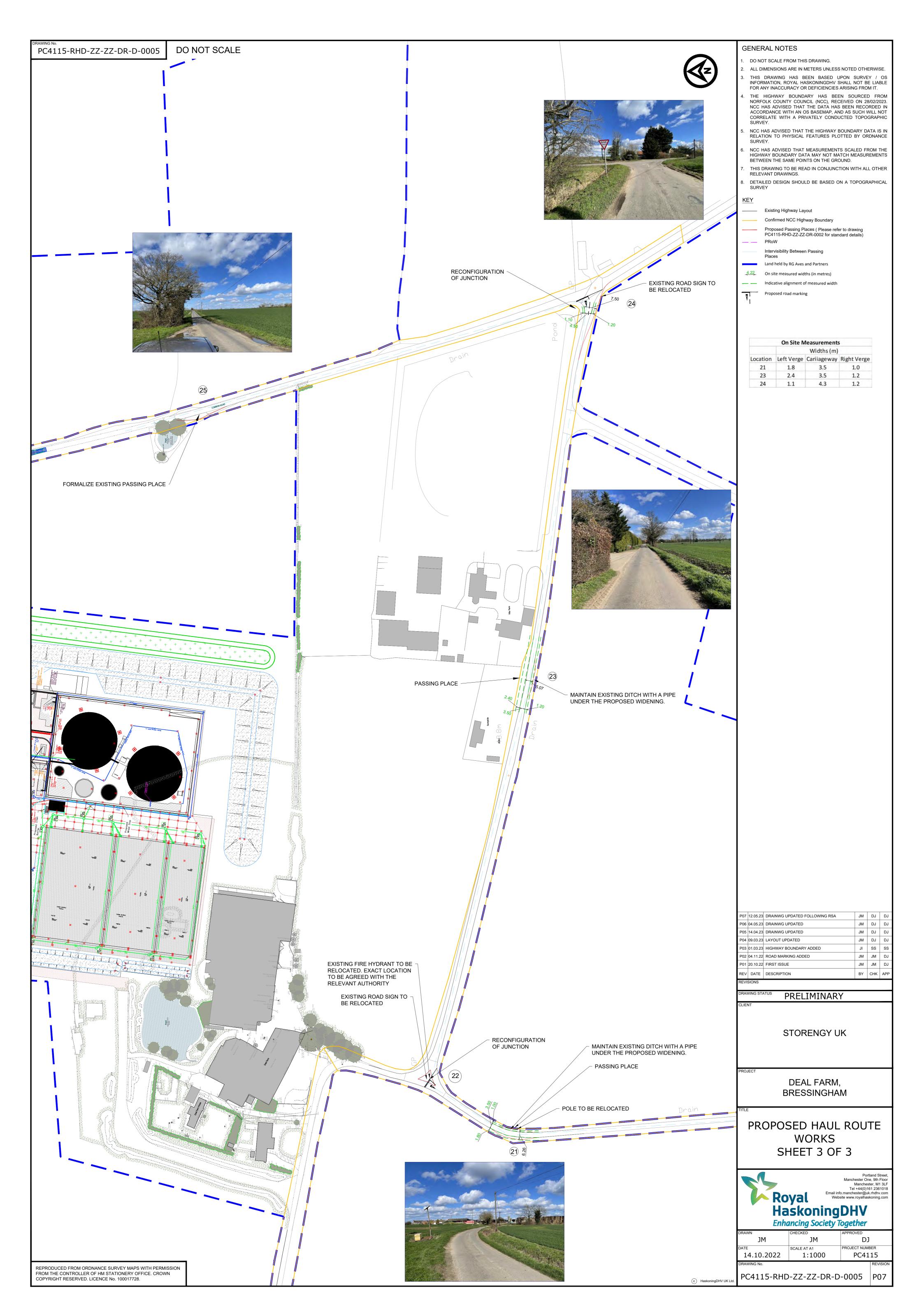


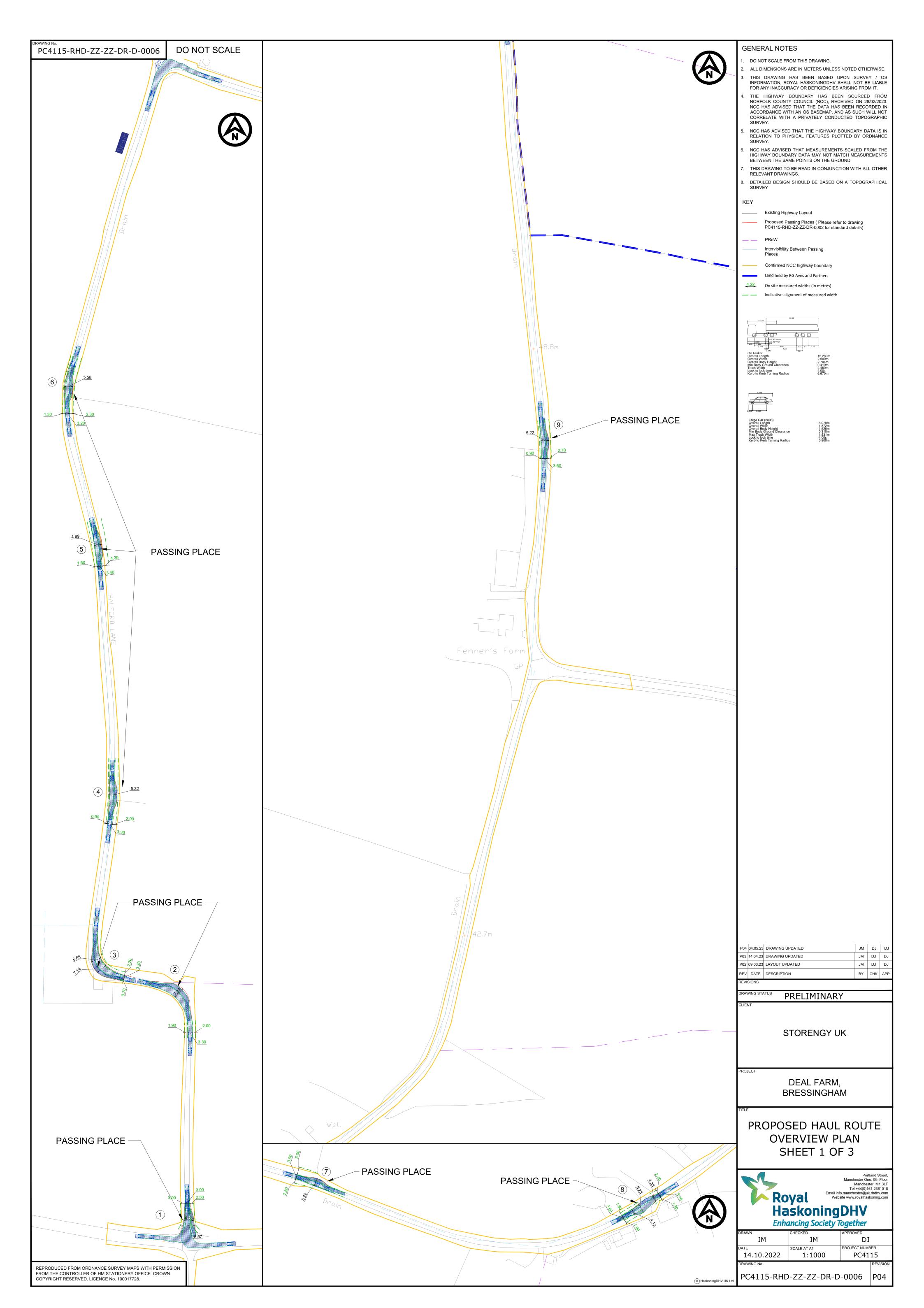
F Proposed Off-Site Highways Works

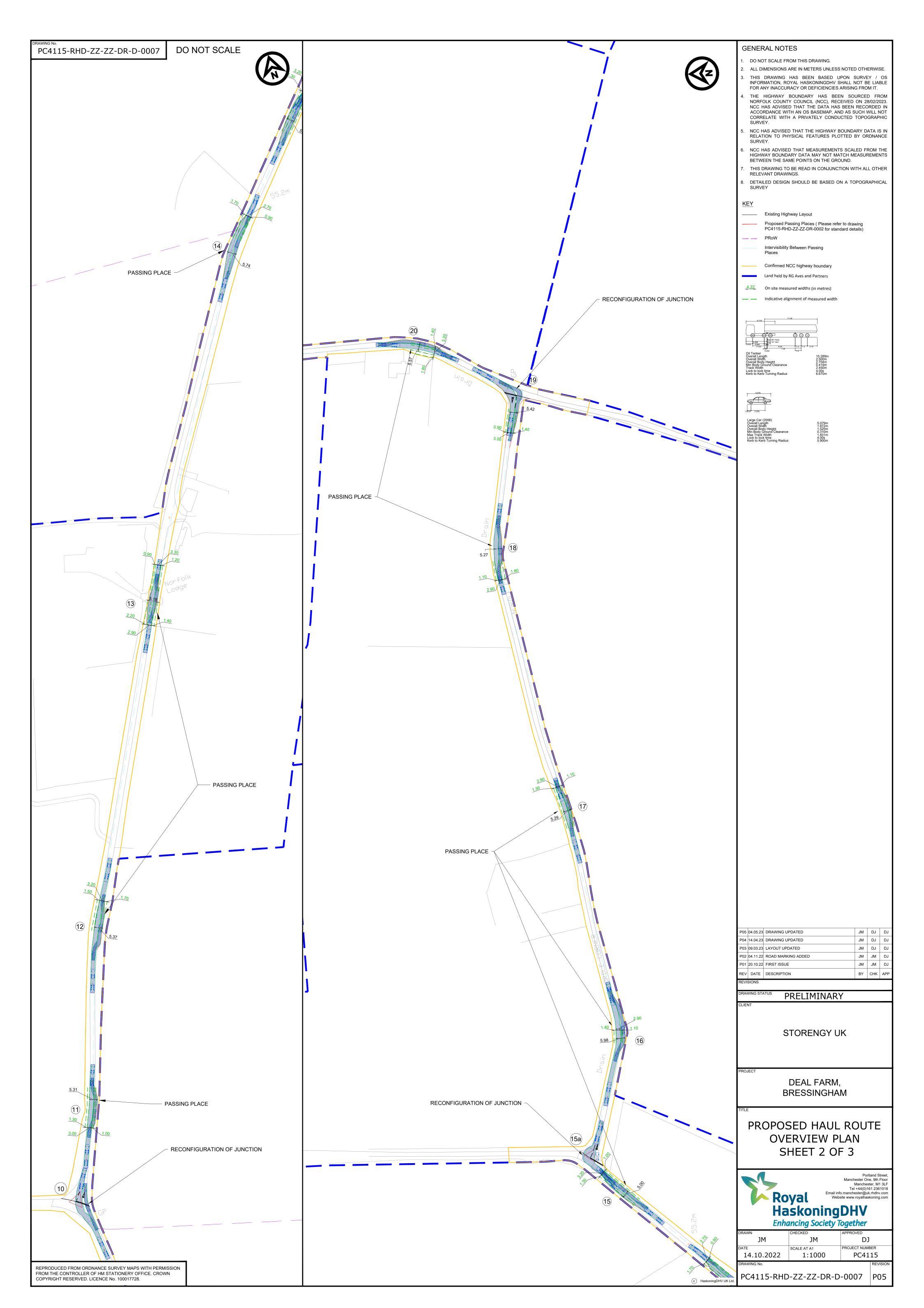


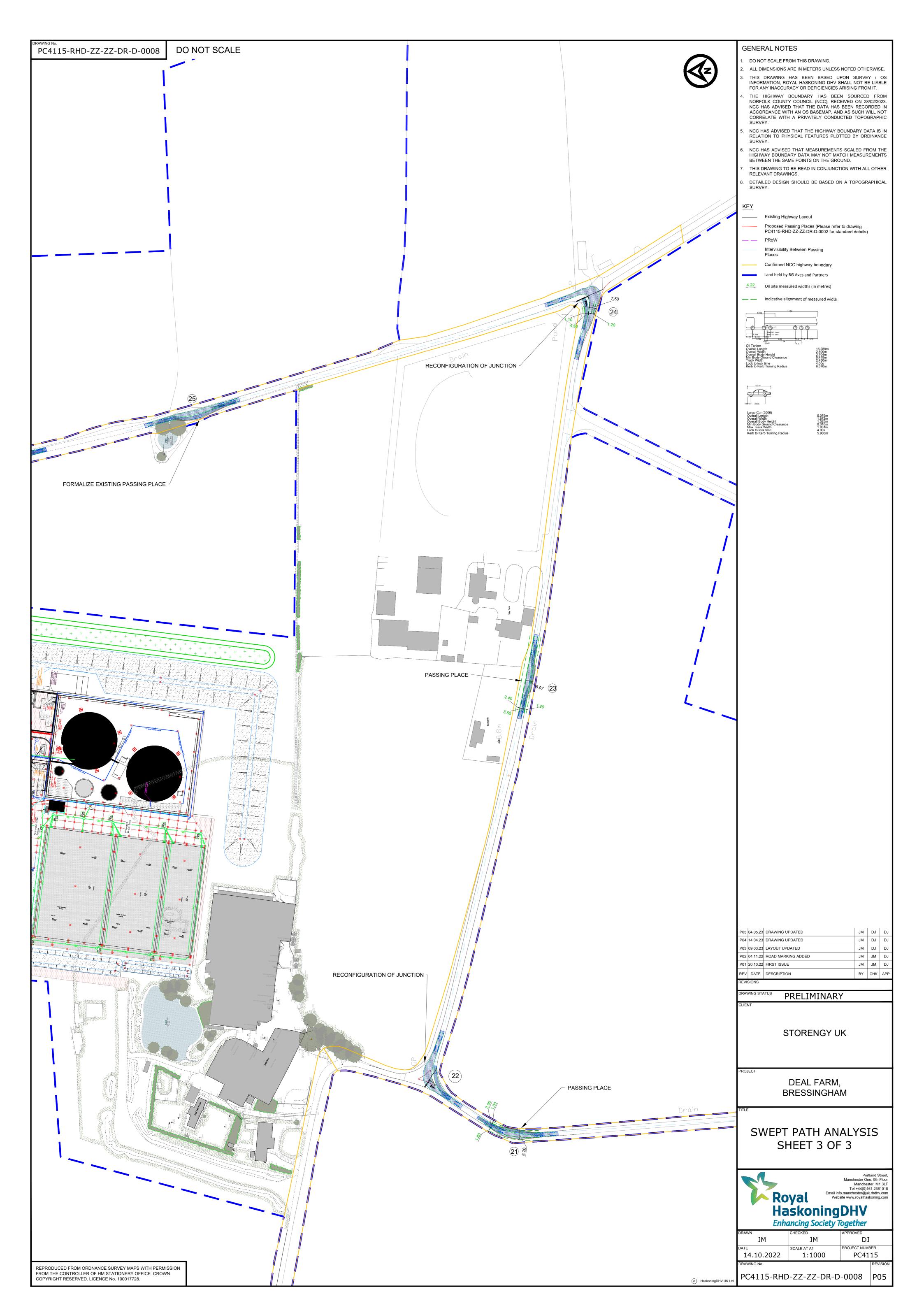














Stage 1 Road Safety Audit

Client: Storengy UK

Reference: PC4115-RHD-ZZ-XX-RP-SA-0002

Status: Final/0

Date: 10 May 2023





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Document title: Deal Farm, Bressingham

Subtitle: Stage 1 Road Safety Audit

Reference: PC4115-RHD-ZZ-XX-RP-SA-0002

Status: 0/Final

Date: 10 May 2023

Project name: Deal Farm - Stage 1 Road Safety Audit

Project number: PC4115
Author(s): Vicky Seaton

Drafted by: Vicky Seaton

Checked by: Bryn Buck

Date: 10.05.2023

Approved by: Vicky Seaton

Date: 10.05.2023

Classification

Project related

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1 Introduction

Royal HaskoningDHV has been appointed by Storengy UK to undertake a Stage 1 Road Safety Audit. The Audit refers to highway works associated with a haul route for a proposed Anaerobic Digestion (AD) plant at Deal Farm, off Kenninghall Road, Bressingham in Norfolk. The extents of the Road Safety Audit are shown on **Figure 1** of this report.

The Audit Team for this Stage 1 Road Safety Audit is as follows:

Audit Team Leader

Vicky Seaton, BSc (Hons), MSoRSA, MCIHT, Certificate of Competency, iRAP Accredited Supplier of Coding, Analysis and Reporting
Royal HaskoningDHV

Audit Team Member Bryn Buck, MIHE

Royal HaskoningDHV

The Road Safety Audit took place on Wednesday 10 May 2023, in accordance with information provided by Sarah Simpson of Royal HaskoningDHV's Peterborough office, as designers of the scheme. The Road Safety Audit comprised an examination of documents listed in **Appendix A** of this report, and a site visit.

A site visit was previously undertaken on Monday 24 October 2022 between 14:00 and 14:30, during the afternoon interpeak traffic period. Weather conditions during the site visit were sunny and surface conditions were mainly dry, with some surface water ponding in places. Traffic and non-motorised user flows on the existing roads forming the proposed haul route were considered to be representative for the time of day and the location.

The terms of reference for the Road Safety Audit are described in GG 119¹. The Road Safety Audit has examined and reported only on the road safety implications of the scheme as presented and has not examined or verified the compliance of the design to any other criteria.

A similar scheme was subject to a Stage 1 Road Safety Audit in October 2022. The revised scheme would provide 25 no. passing places/ junction modifications on approximately 4.5 kilometres (km) of existing rural roads. The locations of the passing places have been numbered for ease of identification within this Stage 1 Road Safety Audit. The passing places and identification numbers are shown on **Figure 2** of this report. The locations of any problems identified by the Audit Team are shown on **Figure 3** of this report.

It is understood that the audited scheme is at the planning application stage, and as a result there are a number of items that the Audit Team would wish to see that are not available for this Stage 1 Road Safety Audit.

As such, the Design Team should in due course submit a full Stage 2 Road Safety Audit alongside the detailed design package issued to the Local Highway Authority for approval.

Items to be considered within the detailed design may include:

Drainage.

¹ GG 119 (Formerly HD 19/15) Road Safety Audit, Revision 2, January 2020



- Road signs.
- Carriageway markings.
- Pavement and kerbing details.

The Audit Team has not been made aware of any Departures (or Relaxations) from Standard.

A summary of Personal Injury Collision (PIC) data has been provided to the Audit Team within the approved Audit Brief. The information provided within the Audit Brief, which has been obtained from the CrashMap² website, indicates that there have been no PICs recorded on the existing highway network which forms part of the proposed haul route during the most recent five-year period (2017-2021).

Notably, the CrashMap database only contains collisions up to December 2021. As such, further details relating to any collisions in the vicinity of the proposed scheme would require independent verification by the Client should the Local Highway Authority have any concerns relating to the collision history at this location.

Any recommendations included within this report should not be regarded as being prescriptive design solutions to the problems identified. They are only to indicate a proportionate and viable means of eliminating or mitigating the identified problem in accordance with GG 119, and in no way imply that a formal design process has been undertaken.

There may be alternative means of addressing a problem which would be equally as acceptable or superior in achieving the desired degree of mitigation, and these should be considered when responding to this report.

² www.CrashMap.co.uk



2 Problems Raised During Previous Stage 1 Road Safety Audit

An independent Stage 1 Road Safety Audit was undertaken on the previous iteration of the scheme by Royal HaskoningDHV in October 2022. The relevant problems from the Stage 1 Road Safety Audit and the Audit Team's consideration of the current status of each problem is summarised in **Table 2.1**.

Table 2.1 – Previous Stage 1 Road Safety Audit Problems

ID	October 2022 Stage 1 Road Safety Audit Problems	Current Status	Rationale
A1.1.1	Landscaping, earth banks and the alignment of the existing carriageway restricted forward visibility between road users in the vicinity of 10 of the previously proposed passing places. Failure to provide and maintain adequate forward visibility could result in conflicts between oncoming vehicles or sudden braking leading to rear end shunts or loss of control collisions.	Remains	'Intervisibility between passing places' has been indicated on drawings provided to the Audit Team. However, it is not clear whether forward visibility to the passing places can be achieved where earth banks or the higher level of adjacent land are present. As such, this problem has been raised again within this Stage 1 Road Safety Audit.
A1.2.1	The proximity of the passing places to existing signs, telegraph poles and trees could lead to collisions with these items as vehicles are manoeuvring into the facilities. Collisions with street furniture and trees could result in injuries or to damage to the infrastructure leading to collapse and subsequent collisions.	Remains	It is indicated on the drawings provided to the Audit Team that some existing infrastructure would be relocated. However, there are still locations where signs would be located within the extents of the proposed passing places or junction reconfiguration requirements. As such, this problem has been raised again within this Stage 1 Road Safety Audit.
A1.2.2	Some of the passing places appear to be located immediately adjacent to deep drainage ditches. Vehicles manoeuvring into/ out of the passing places could inadvertently leave the carriageway to the nearside, sliding into the ditches or entering the adjacent fields, resulting in the potential for injuries to vehicle occupants.	Remains	The drawings provided to the Audit Team indicate that some of the existing ditches would be piped beneath the proposed widening. However, there are some locations where the ditches would not be piped, leaving road users at risk of entering the drainage features. The Designer's Response associated with the October 2022 Stage 1 Road Safety Audit indicated that a kerb would be provided at the edge of the passing bay to 'keep vehicles safe and away from the ditch'. The Audit Team is concerned that a kerb would be insufficient to prevent a vehicle from entering the ditch whilst manoeuvring. As such, this problem has been raised again within this Stage 1 Road Safety Audit.
A2.1.1	The proposals would result in an existing chamber cover at Location 6 being subject to overrunning by vehicular traffic. If the loading properties of the cover is not sufficient, it could become damaged or collapse, leading to vehicle damage and the potential for loss of control collisions.	Resolved	Drawing PC4115-RHD-ZZ-ZZ-DR-D-0003-P05 indicates that the chamber covers would be relocated. As such, this problem has been resolved.



ID	October 2022 Stage 1 Road Safety Audit Problems	Current Status	Rationale
A2.1.2	Information provided to the October 2022 Audit Team did not provide details in relation to the relocation of a fire hydrant marker or whether it may be necessary to relocate access to the hydrant itself. Failure to relocate the sign to a suitable location could result in delays in obtaining access to the hydrant during an emergency situation, leading to the potential for high severity injuries or significant damage to property.	Remains	No information has been provided to the Audit Team in relation to the relocation of the fire hydrant/ sign. As such, this problem has been raised again within this Stage 1 Road Safety Audit.
A3.1.1	No details were provided to the October 2022 Audit Team in relation to proposed carriageway markings at the amended junctions, reducing road user awareness of prioritise and give-way requirements. Reduced awareness of priorities at the junctions could result in multiple collision types including nose-to-nose or side impact collisions, and rear end shunts due to sudden braking.	Resolved	Carriageway markings have been shown on the drawings provided to the Audit Team. As such, this problem has been resolved.



3 Matters Arising from this Stage 1 Road Safety Audit

A1 Local Alignment

A1.1 Visibility

A1.1.1 Problem 1

Location: Proposed haul route; multiple locations as follows:

- Halford Lane (Location 2, Location 3).
- Fersfield Road (Location 10).
- Nordle Corner (Location 15, Location 15a, Location 17, Location 19, Location 20).
- Kenninghall Road (Location 21, Location 22).

Summary: Insufficient forward visibility in advance of, and/ or within the vicinity of the proposed passing places could result in sudden braking leading to the potential for rear end shunts or loss of control collisions.

Description: Landscaping earth banks and the alignment of the existing carriageway currently restrict forward visibility between road users in the vicinity of 10 no. of the proposed passing places. Failure to provide and maintain adequate forward visibility could result in conflicts between oncoming vehicles or sudden braking leading to rear end shunts or loss of control collisions.

Photograph 1 - Nordle Corner (Location 15/15a)



Photograph 2 – Kenninghall Road (Location 22)



Recommendation - A1.1.1

Drawings provided to the Audit Team provide details relating to the intervisibility between passing places. It is not clear however whether any alterations to existing landscaping or topography would be made to provide and maintain the visibility indicated on the plans. If it is not possible to provide adequate forward visibility due to landscaping, topography, or alignment, it may be necessary to relocate the passing place to a location where sufficient forward visibility can be achieved.



A1.2 New/ Existing Road Interface

A1.2.1 Problem 2

Location: Proposed haul route; multiple locations as follows:

- Halford Lane (Location 1, Location 2).
- Nordle Corner (Location 17).
- Lady's Lane/ Kenninghall Road (Location 22).
- Kenninghall Road/ Common Road (Location 24).

Summary: Collisions with street furniture/ trees could lead to the potential for collapse of the infrastructure, leading to injuries or to subsequent collisions.

Description: The proximity of the passing places (and the reconfiguration of existing junctions) to signs, telegraph poles and trees could lead to collisions with these items as vehicles are manoeuvring into the passing facilities. Collisions with street furniture and trees could result in injuries or to damage to the infrastructure leading to collapse and subsequent collisions.

Photograph 3 - Image of Halford Road looking north towards Location 2



Recommendation - A1.2.1

Street furniture within the extents of the proposals should be relocated where possible. If it is not possible to relocate the street furniture or remove trees, the passing places be relocated to reduce the potential for collisions with existing infrastructure.



A1.2.2 Problem 3

Location: Proposed haul route; multiple locations as follows:

- Halford Lane (Location 4).
- The Valley (Location 8).
- Common Road (Location 24).

Summary: Proximity of proposed passing places to drainage ditches could result in vehicles inadvertently leaving the carriageway with the potential for injury.

Description: Some of the passing places appear to be located immediately adjacent to deep drainage ditches. Vehicles manoeuvring into/ out of the passing places could inadvertently leave the carriageway to the nearside, sliding into the ditches or entering the adjacent fields, resulting in the potential for injuries to vehicle occupants.

Photograph 4 - Image of Kenninghall Road looking east towards Common Road, showing deep drainage ditches adjacent to proposed junction reconfiguration (Location 24)



Recommendation - A1.2.2

Passing places should be located to reduce the potential for vehicles to enter ditches whilst entering/leaving the passing places. Where it is not possible to relocate a passing place or where the reconfiguration of an existing junction is proposed, measures (such as culverting the ditch) to protect road users from entering exposed ditches could be provided.



A1.2.3 Problem 4

Location: Proposed haul route; multiple locations as follows:

■ Halford Lane (Location 2, Location 4).

Summary: Vehicles overhanging the main carriageway could lead to side swipe collisions with passing traffic leading to the potential for damage and secondary collisions elsewhere on the highway.

Description: Earth banks are present adjacent to two of the proposed passing places. The presence of these boundary features could restrict the available space to provide a passing place of sufficient width to accommodate a vehicle without overhanging the main carriageway. Vehicles overhanging the main carriageway could lead to swipe collisions with passing traffic resulting in the potential for damage and secondary collisions elsewhere on the highway.

Photograph 5 - Image of Halford Lane looking north, showing levels difference between carriageway and adjacent field



Recommendation - A1.2.3

The width of the proposed passing places should be sufficient to accommodate a vehicle fully, without overhanging the adjacent carriageway. Where existing boundary features are unable to be modified to accommodate the passing places, consideration should be given to relocating the passing place.



A2 General

A2.1 Public Utilities

A2.1.1 Problem 5

Location: Lady's Lane/ Kenninghall Road (Location 22).

Summary: Reduced conspicuity of the location of a fire hydrant could lead to high severity injuries or significant damage to property in an emergency situation.

Description: A fire hydrant marker is present on the grassed island at the junction of Lady's Lane and Kenninghall Road. Drawing PC4115-RHD-ZZ-ZZ-DR-D-0005 P06 indicates that the island would be removed in order to accommodate HGV movements. Information provided to the Audit Team does not provide details in relation to the relocation of the hydrant marker or whether it may be necessary to relocate access to the hydrant itself. Failure to relocate the sign to a suitable location could result in delays in obtaining access to the hydrant during an emergency situation, leading to the potential for high severity injuries or significant damage to property.

Photograph 6 - Image of Lady's Lane/ Kenninghall Road junction, showing hydrant sign on grassed island



Recommendation - A2.1.1

The Designers should liaise with the relevant Water Officer at Norfolk County Council in relation to the requirement to relocate the fire hydrant marker.



A3 Junctions

The Audit Team did not identify any junction related safety problems as part of this Stage 1 Road Safety Audit.

A4 Walking, Cycling and Horse-Riding

The Audit Team did not identify any walking, cycling and horse-riding related safety problems as part of this Stage 1 Road Safety Audit.

A5 Traffic Signs, Carriageway Markings and Lighting

No details relating to traffic signs or lighting were provided to the Audit Team in association with the Stage 1 Road Safety Audit. During the site visit, the Audit Team noted that there are existing signs in locations where passing places are proposed. In instances where existing signage is to be relocated, the proposed new locations should be clearly visible to all road users and that sufficient clearance is provided between the signs and moving vehicles.



4 Audit Team Statement

We certify that this Road Safety Audit has been carried out with reference to GG 119.

Audit Team Leader

Vicky Seaton, BSc (Hons), MSoRSA, MCIHT, iRAP Acc. Supp Signed: V Seaton

Principal Transport Planner

Royal HaskoningDHV Dated: 10.05.2023

6th Floor Cornerblock 2 Cornwall Street Birmingham B3 2DX United Kingdom

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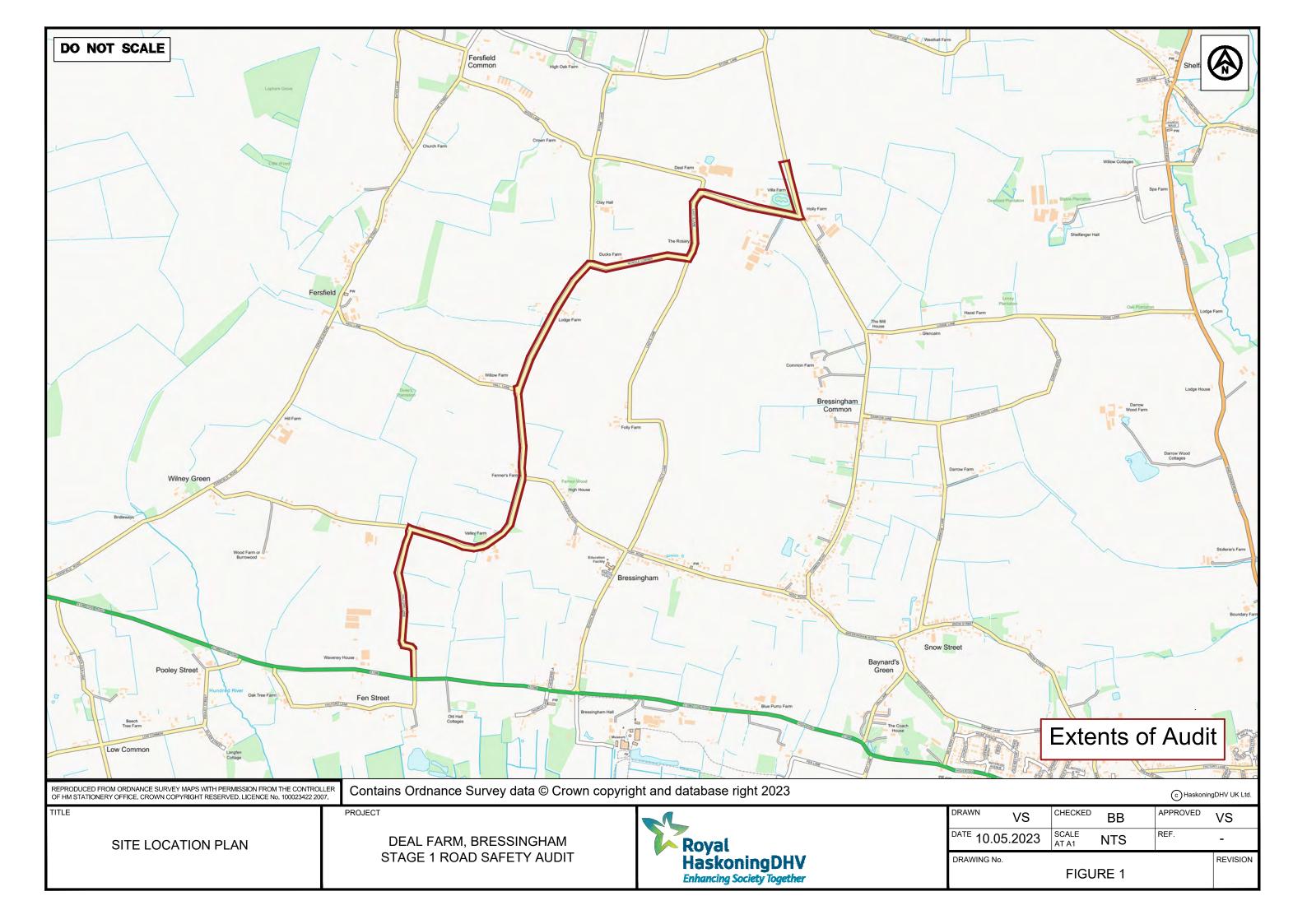
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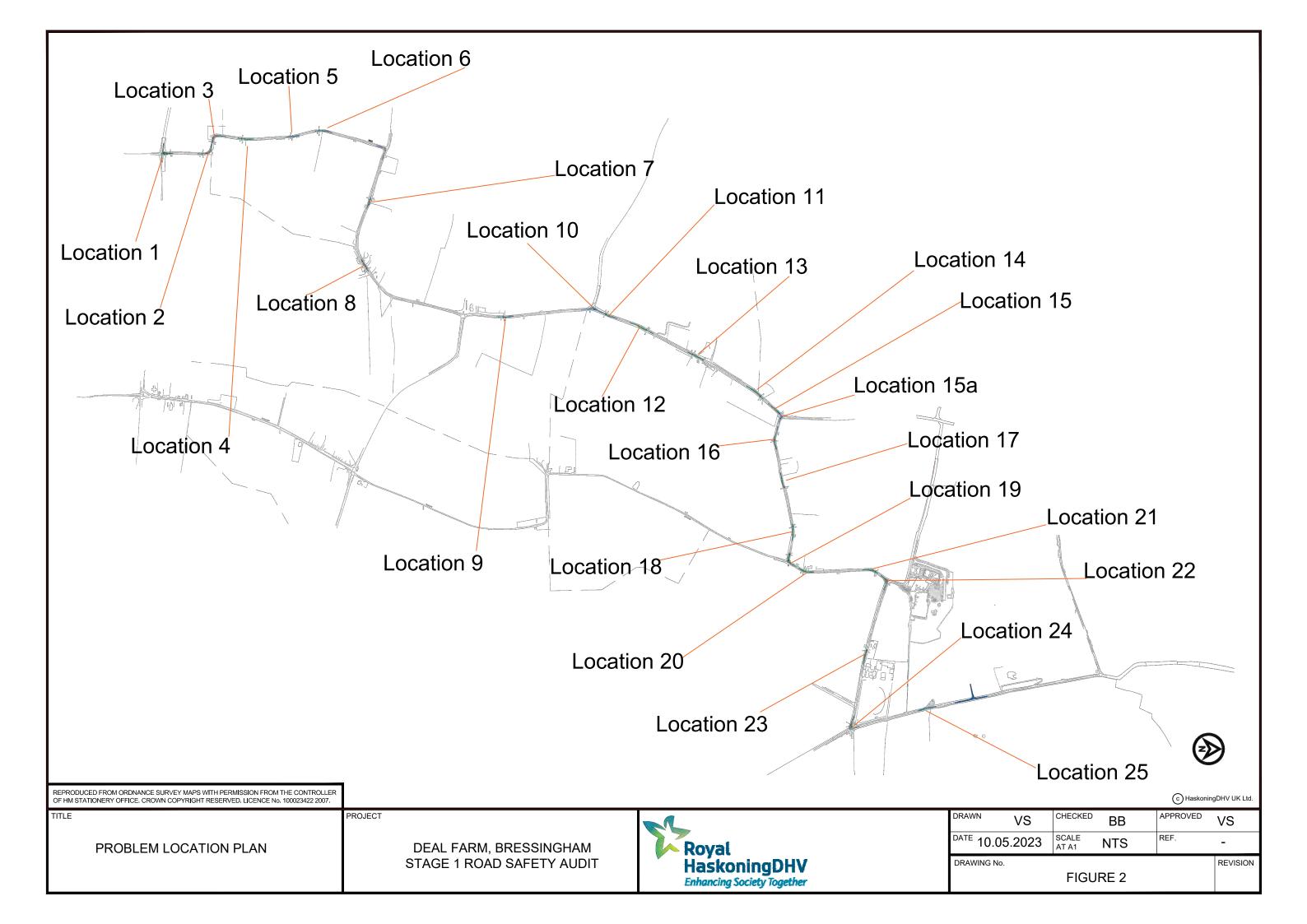
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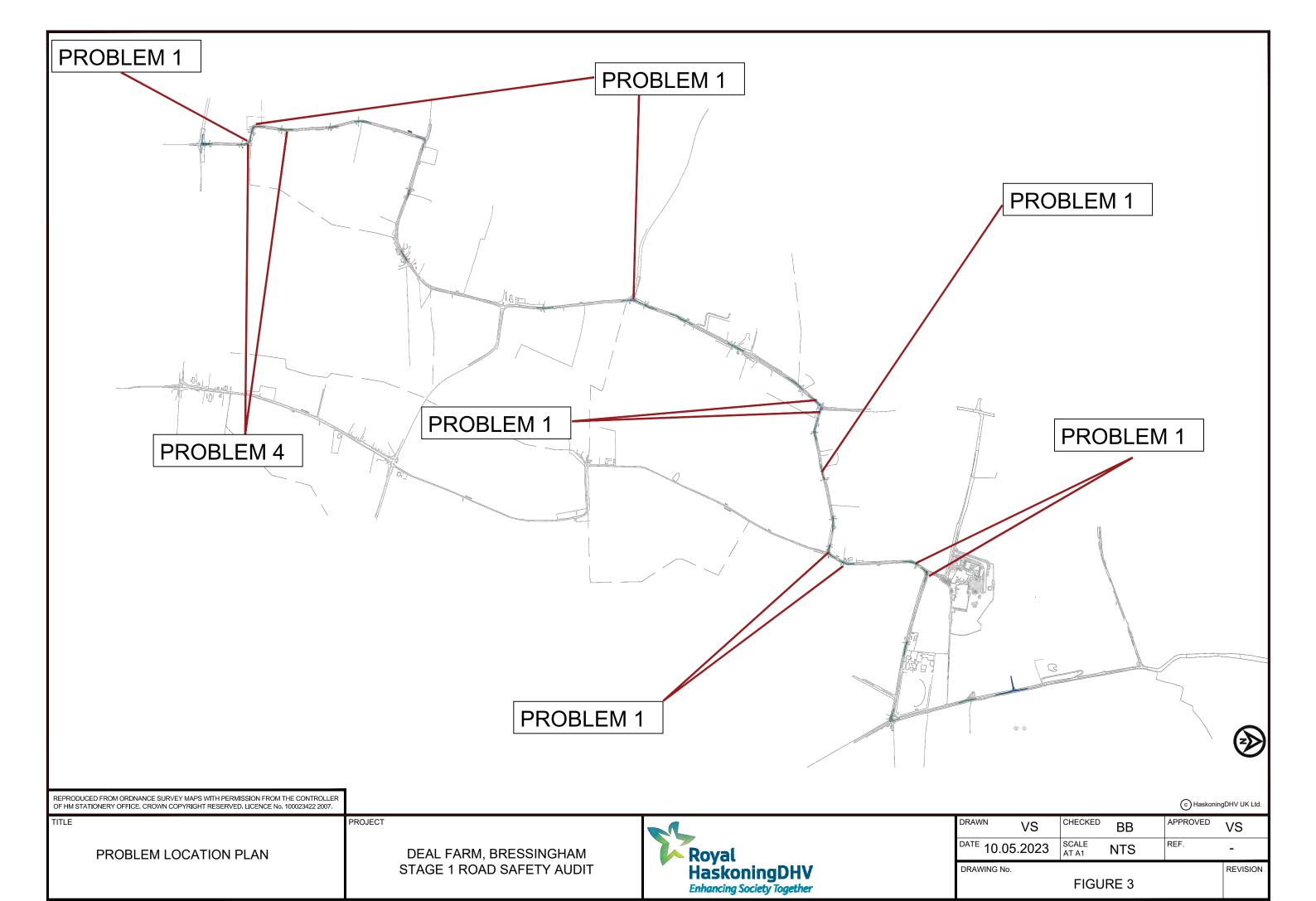
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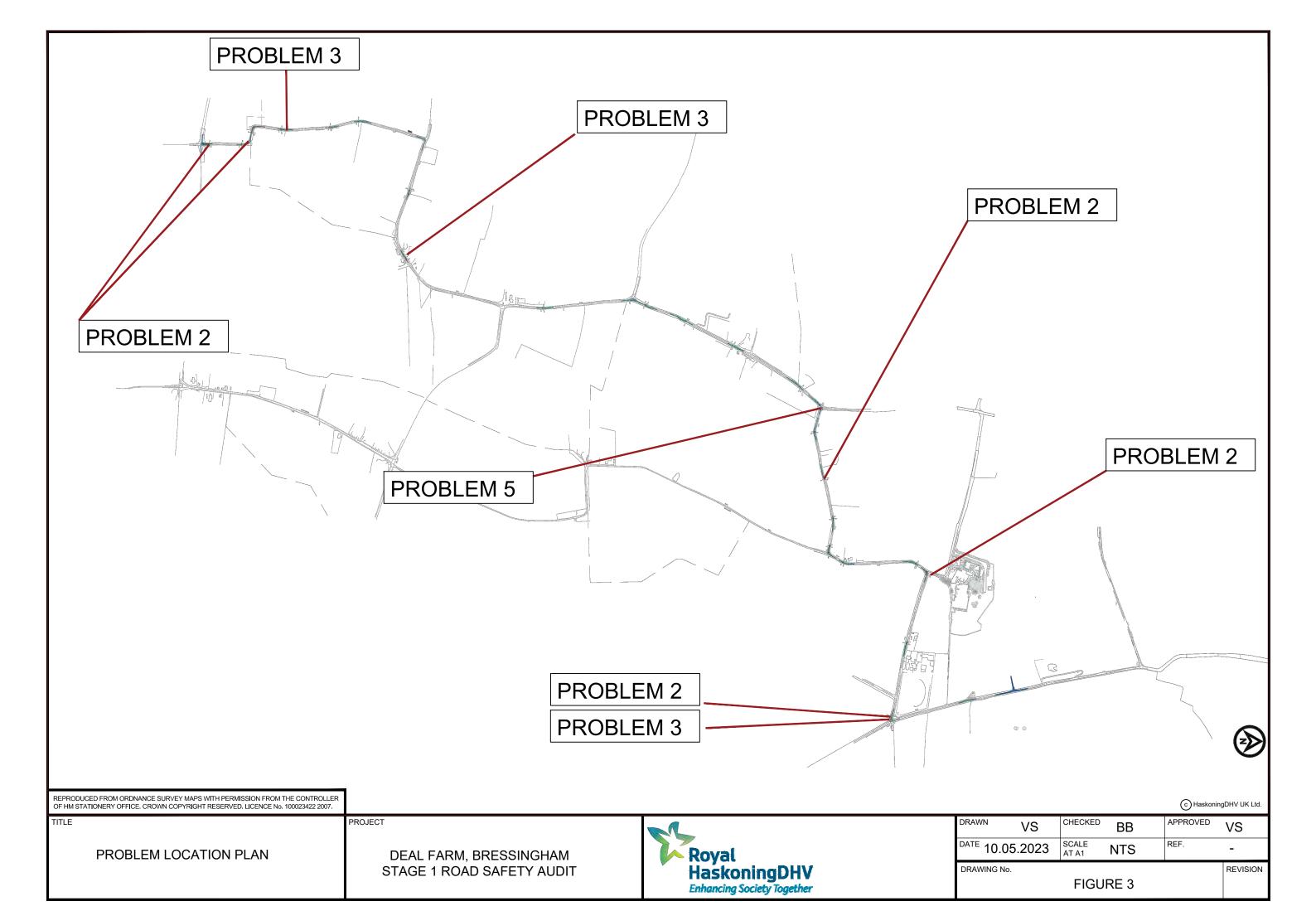
Figures Figure 1 - Site Location Plan Figure 2 - Passing Place Location Plan Figure 3 - Problem Location Plan











Appendix A

Documents Forming the Audit Brief



APPENDIX A

Documents Forming the Audit Brief

DRAWING NUMBER

PC4115-RHD-ZZ-ZZ-DR-D-0002 P06 PC4115-RHD-ZZ-ZZ-DR-D-0003 P05 PC4115-RHD-ZZ-ZZ-DR-D-0004 P06 PC4115-RHD-ZZ-ZZ-DR-D-0005 P06 PC4115-RHD-ZZ-ZZ-DR-D-0006 P04 PC4115-RHD-ZZ-ZZ-DR-D-0007 P05 PC4115-RHD-ZZ-ZZ-DR-D-0008 P05

DRAWING TITLE

Proposed Route Assessment – Overall Plan Proposed Route Assessment – Sheet 1 of 3 Proposed Route Assessment – Sheet 2 of 3 Proposed Route Assessment – Sheet 3 of 3 Swept Path Analysis – Sheet 1 of 3 Swept Path Analysis – Sheet 2 of 3 Swept Path Analysis – Sheet 3 of 3

DOCUMENTS

DETAILS (where appropriate)

 Safety Audit Brief Site Location Plan Traffic signal details Departures from standard Previous Road Safety Audits Previous Designer Responses Collision data Collision plot Traffic flow Pedestrian flow / modelling data Speed survey data 	

STAGE 1 ROAD SAFETY AUDIT RESPONSE

Audit No: PC4115-RHD-ZZ-XX-RP-SA-0002

Auditor(s): Vicky Seaton

Scheme: PC4115 Deal Farm

Date Audit completed: 10 May 2023

Designers Response:

Paragraph No. in Safety Audit Report	Problem Accepted (yes/no)	Recommended Measure accepted (yes/no)	Description / alternative measure
A1.1.1	Yes	Yes	Visibility checks have been done and shown on the drawings. Notes added for any vegetation/ obstruction to the visibility to be cleared. At detailed design stage, visibility to be reviewed with the topographical survey.
A1.2.1	Yes	Yes	The designer tried to avoid the existing furniture in the design as much as possible, however, affected trees/utilities are highlighted on the drawings. The exact location of affected street furniture to be reviewed/refined at detailed design stage based on a topographical survey.
A1.2.2	Yes	Yes	A kerb is proposed at the edge of the passing bay to keep vehicles safe and away from the ditch. A short pipe culvert is proposed for passing places 20,21,23 where the passing place is on top of existing ditch. The affected ditch areas are located in developers' land. Culverted ditch locations to be reviewed at detailed design stage with the topographical survey.
A1.2.3	Yes	Yes	As shown on the swept path analysis drawings, an oil tanker and a large car can pass side by side. The overhang to be checked with topographical survey at detailed design stage.
A2.1.1	Yes	Yes	A note is added to the drawing, highlighting the location of the fire hydrant. At detailed design stage, designer to liaise with the relevant authority for fire hydrant exact relocation.

Signed Joseph Matar

Date 12 May 2023