

Norwich Western Link

Environmental Statement

Chapter 12 Road Drainage and the Water Environment

Appendix 2 Flood Risk Assessment

Sub Appendix A – Figures

Part 3 of 5

Author: WSP UK Limited

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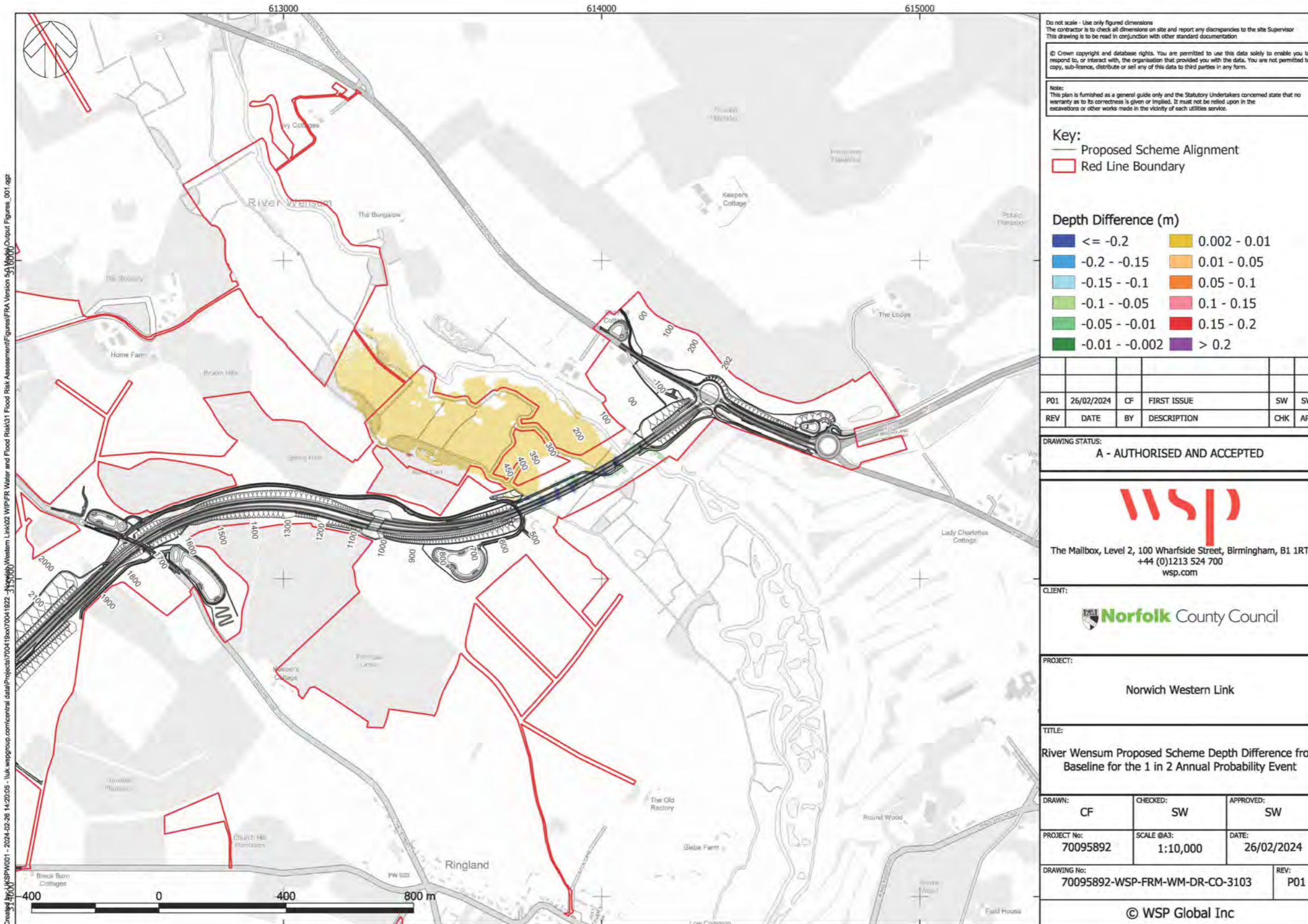
1.1.1 This Sub Appendix presents the figures associated with the **Flood Risk Assessment** (Document Reference 3.12.02). Figures are generally split into four sections as follows:

- Scheme wide figures
- River Wensum figures
- Foxburrow Stream figures
- Ringland Lane overland flow path figures

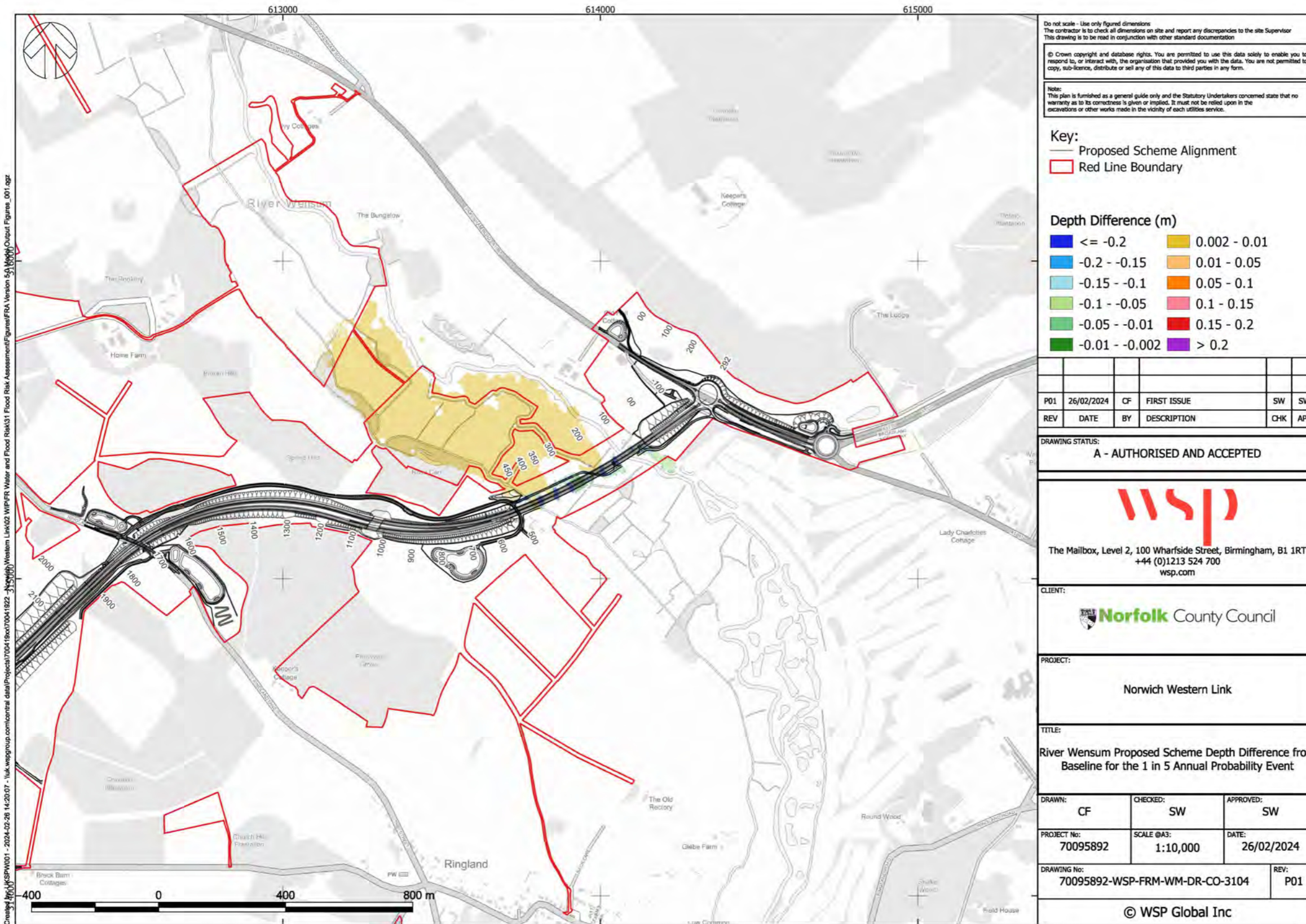
Scheme wide

1.1.2 The following figures provide an overview of the Proposed Scheme as a whole, the various elements that make up the Proposed Scheme and the local infrastructure and environment in the vicinity of the Proposed Scheme and the interactions of all these elements with the Environment Agency's Flood Map for Surface Water.

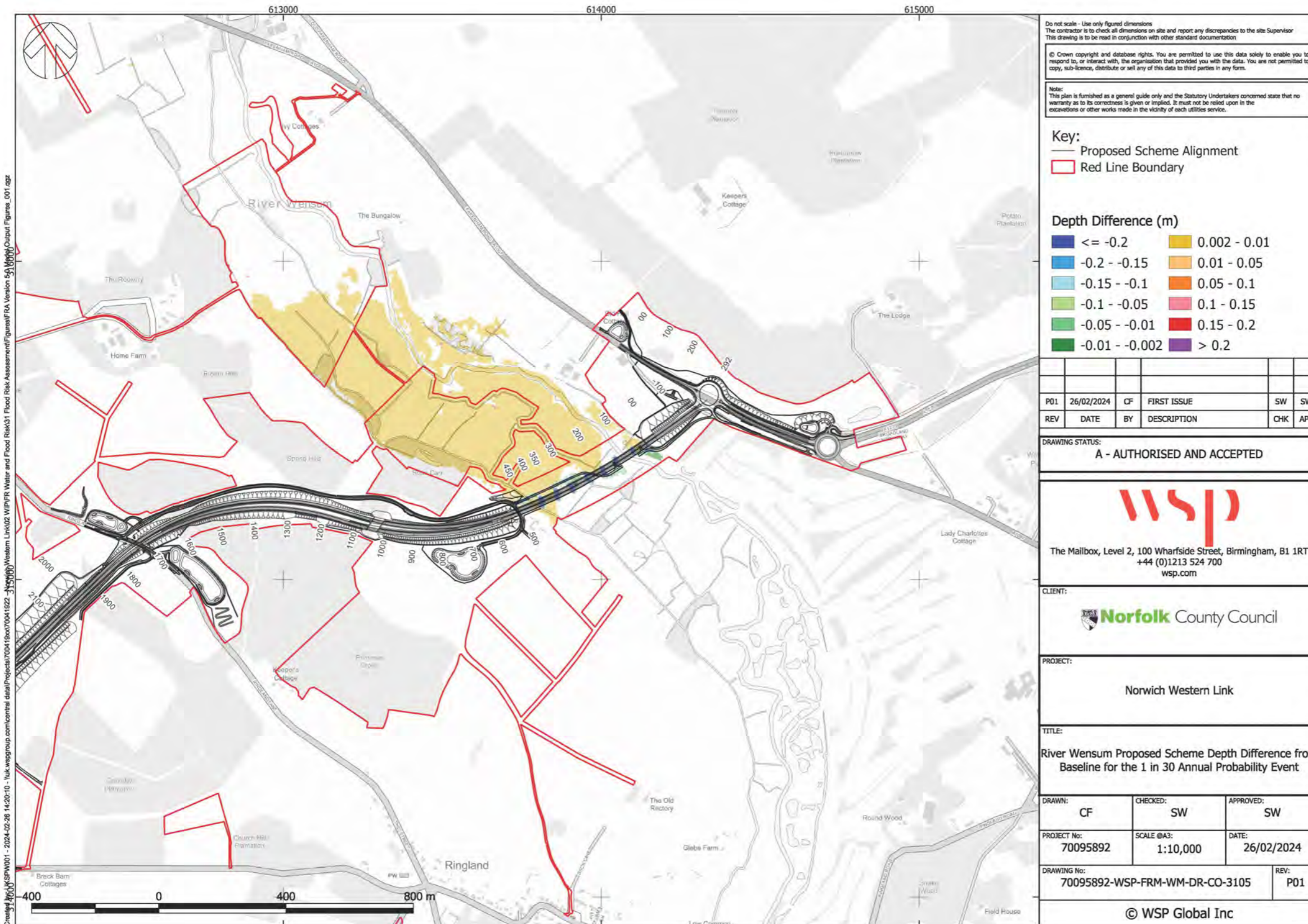
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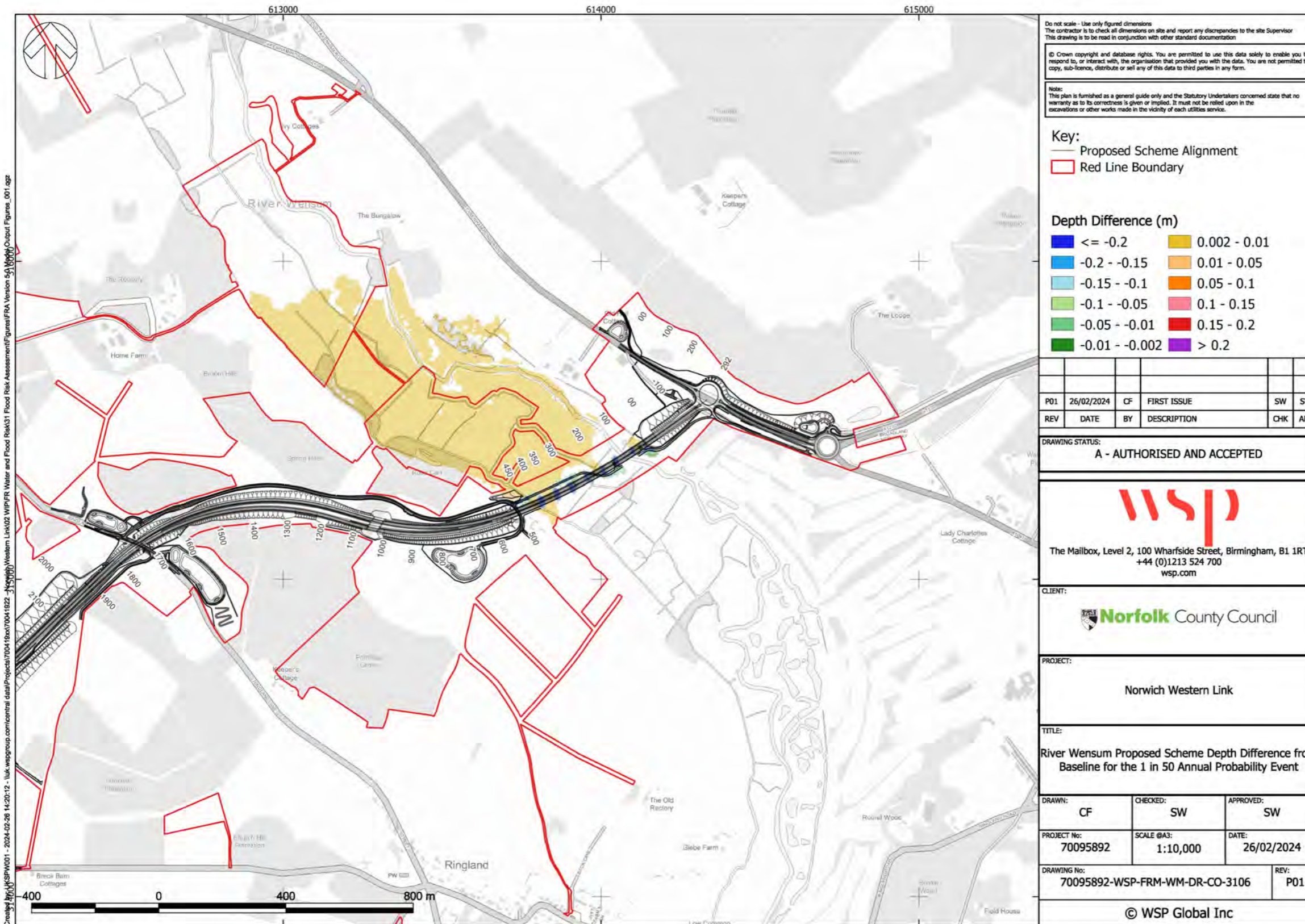
River Wensum proposed scheme depth difference from baseline in the 1 in 5 annual probability event



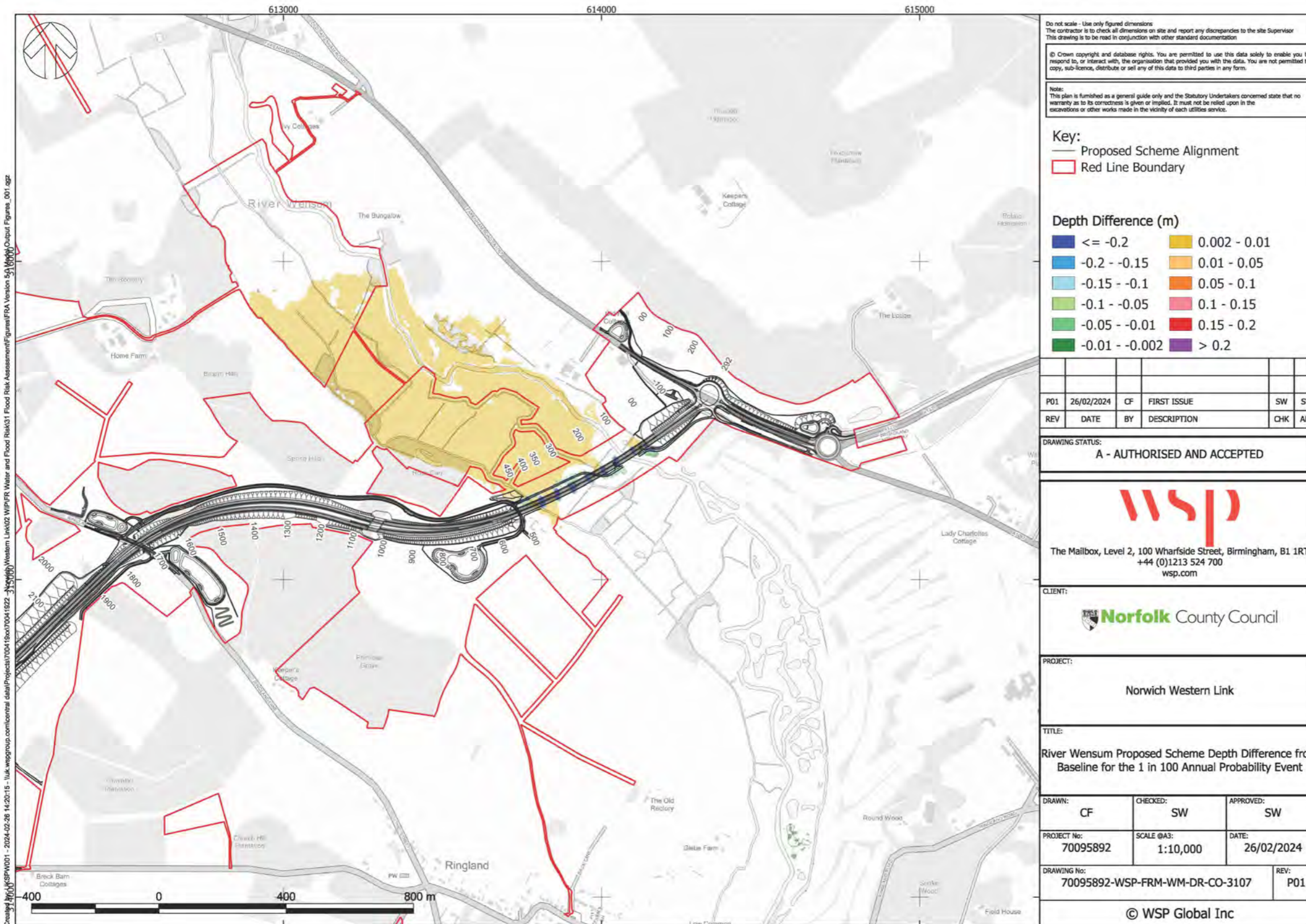
River Wensum proposed scheme depth difference from baseline in the 1 in 30 annual probability event



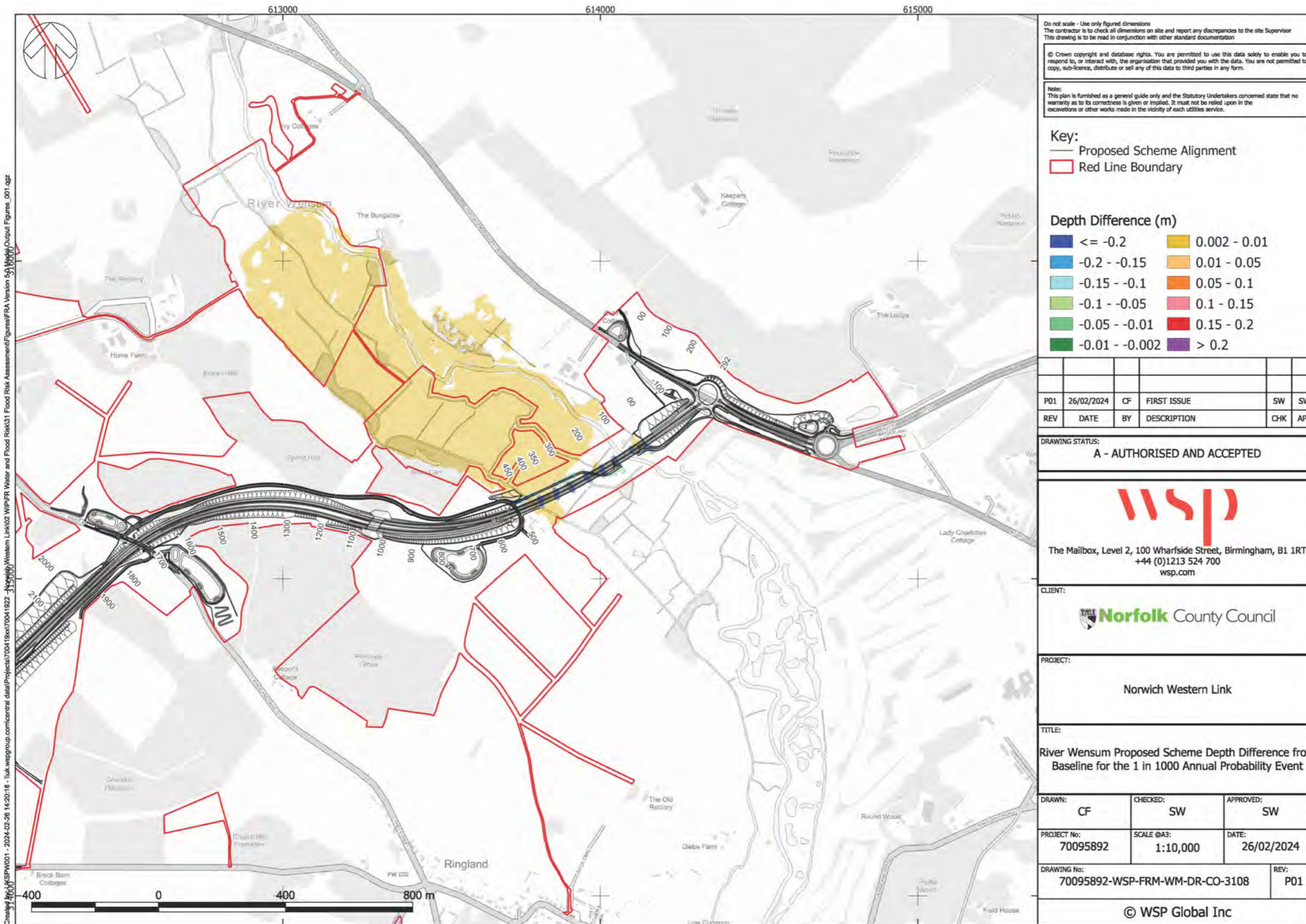
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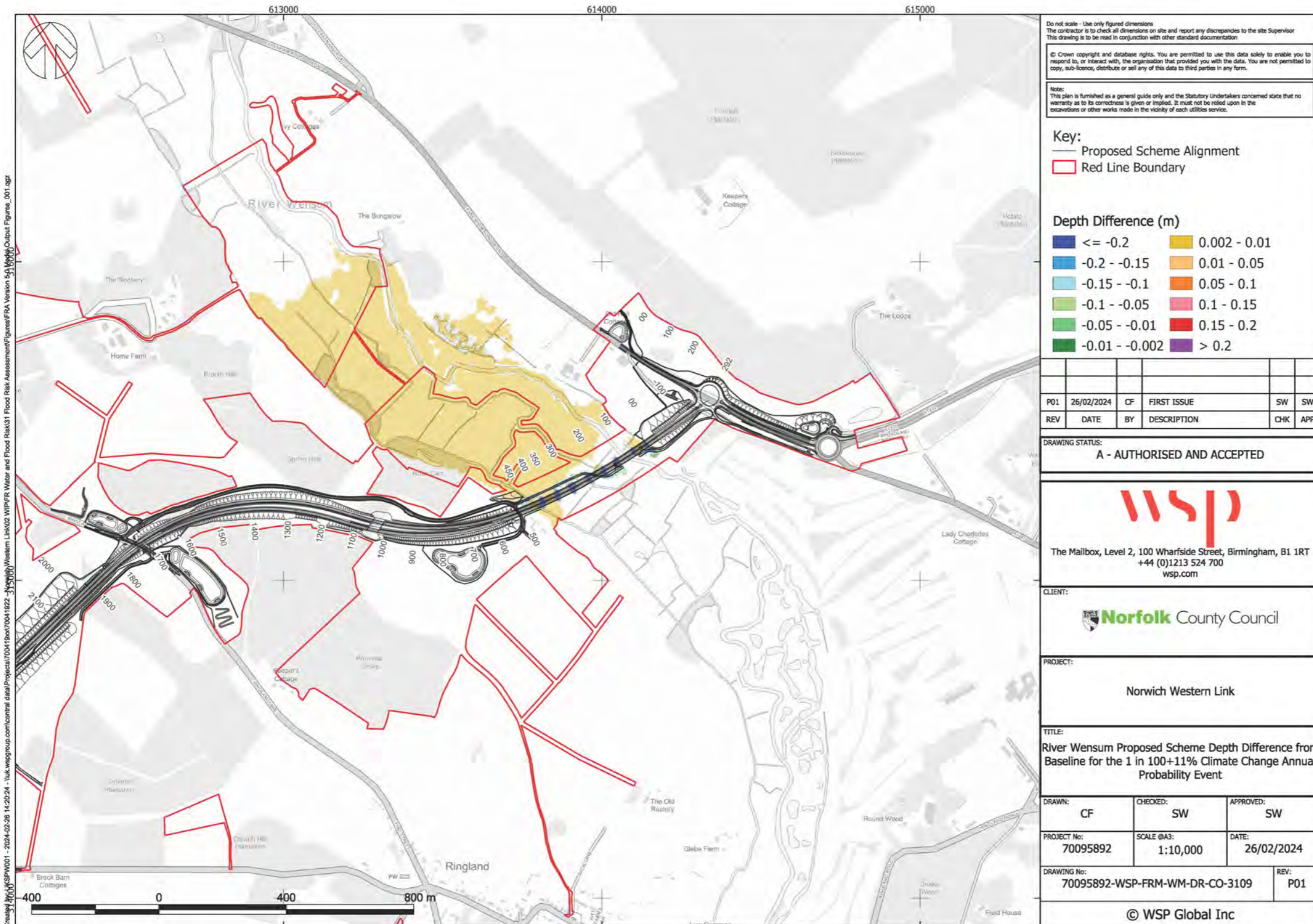
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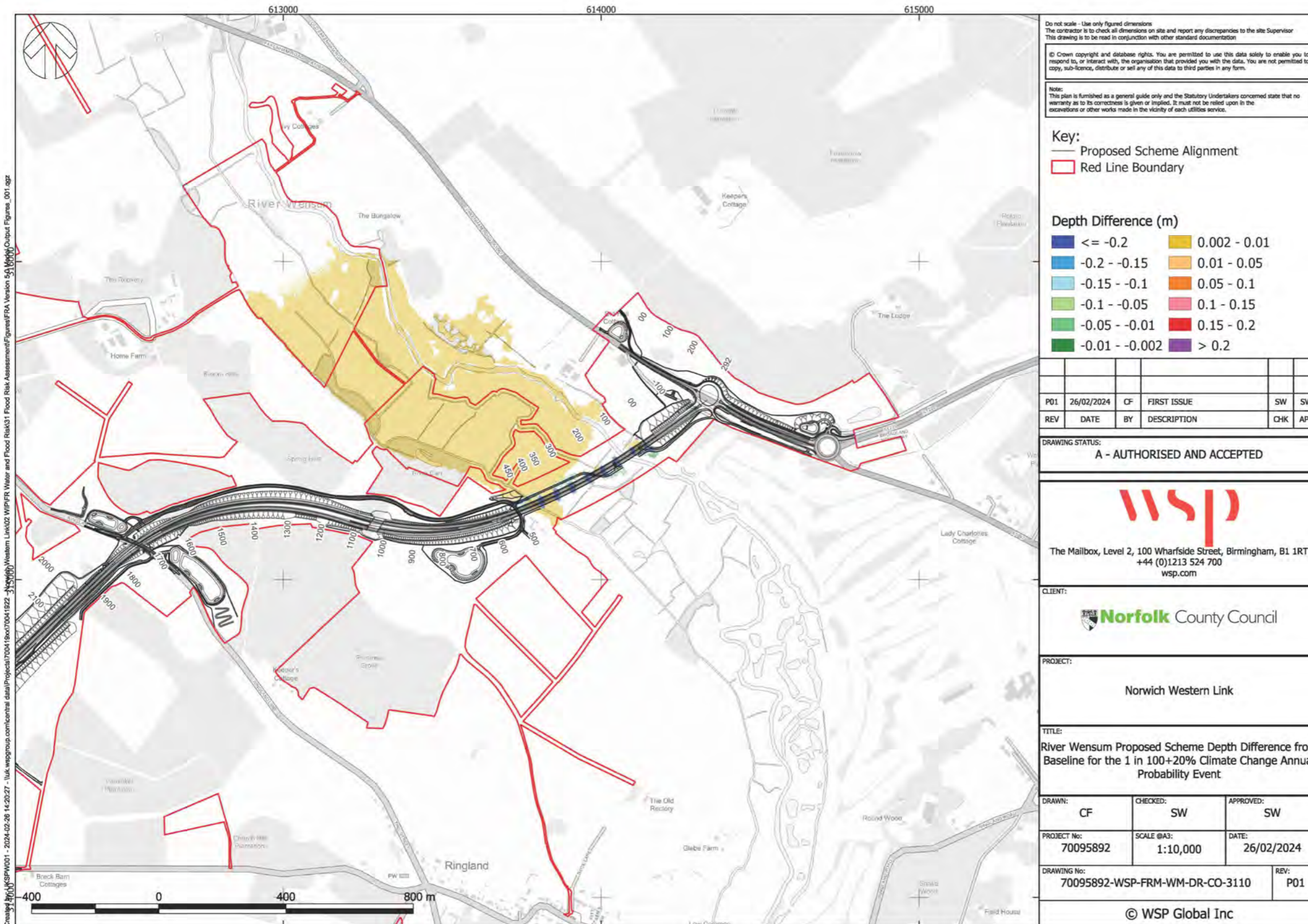
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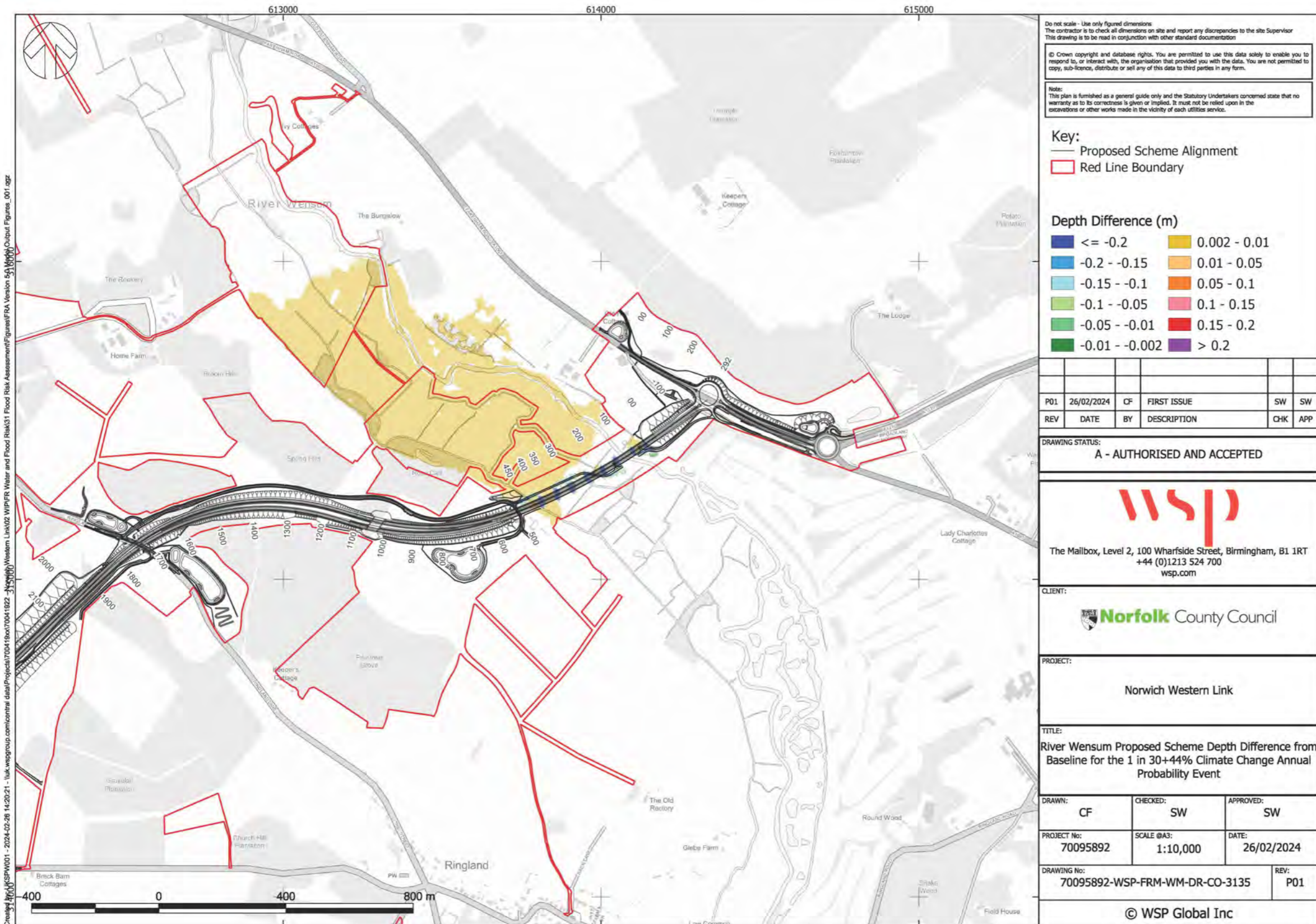
River Wensum proposed scheme depth difference from baseline in the 1 in 100+11% annual probability event



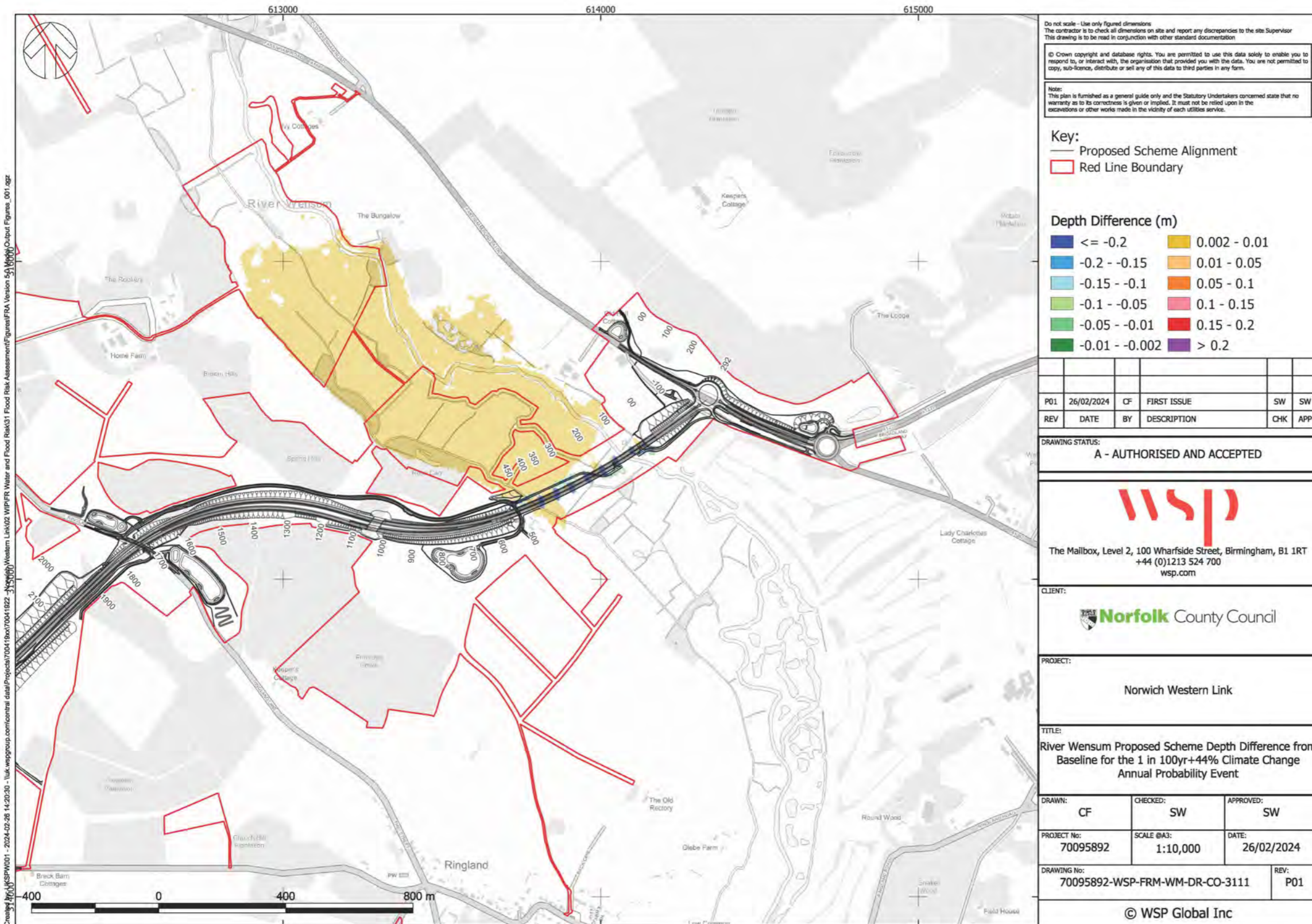
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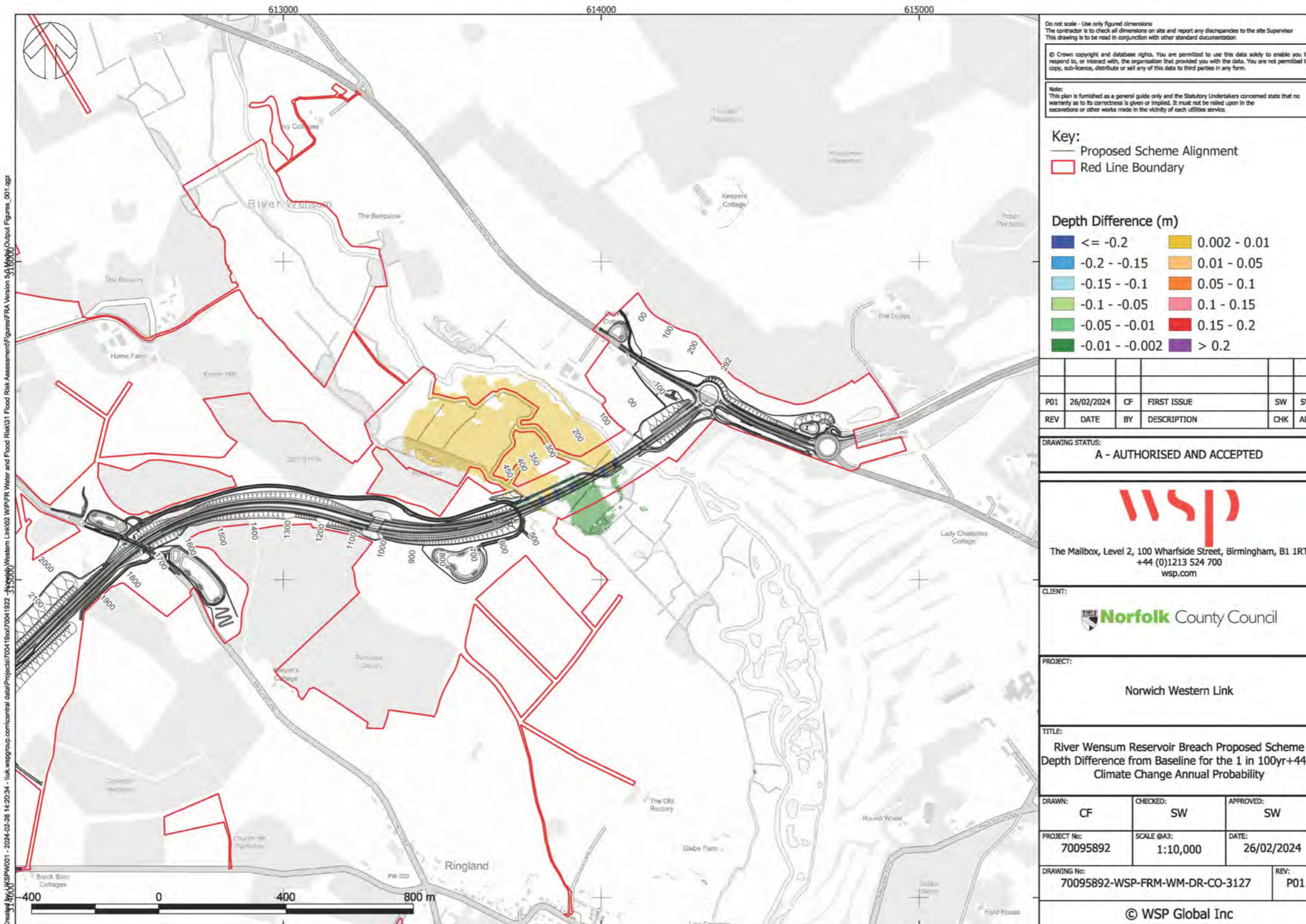
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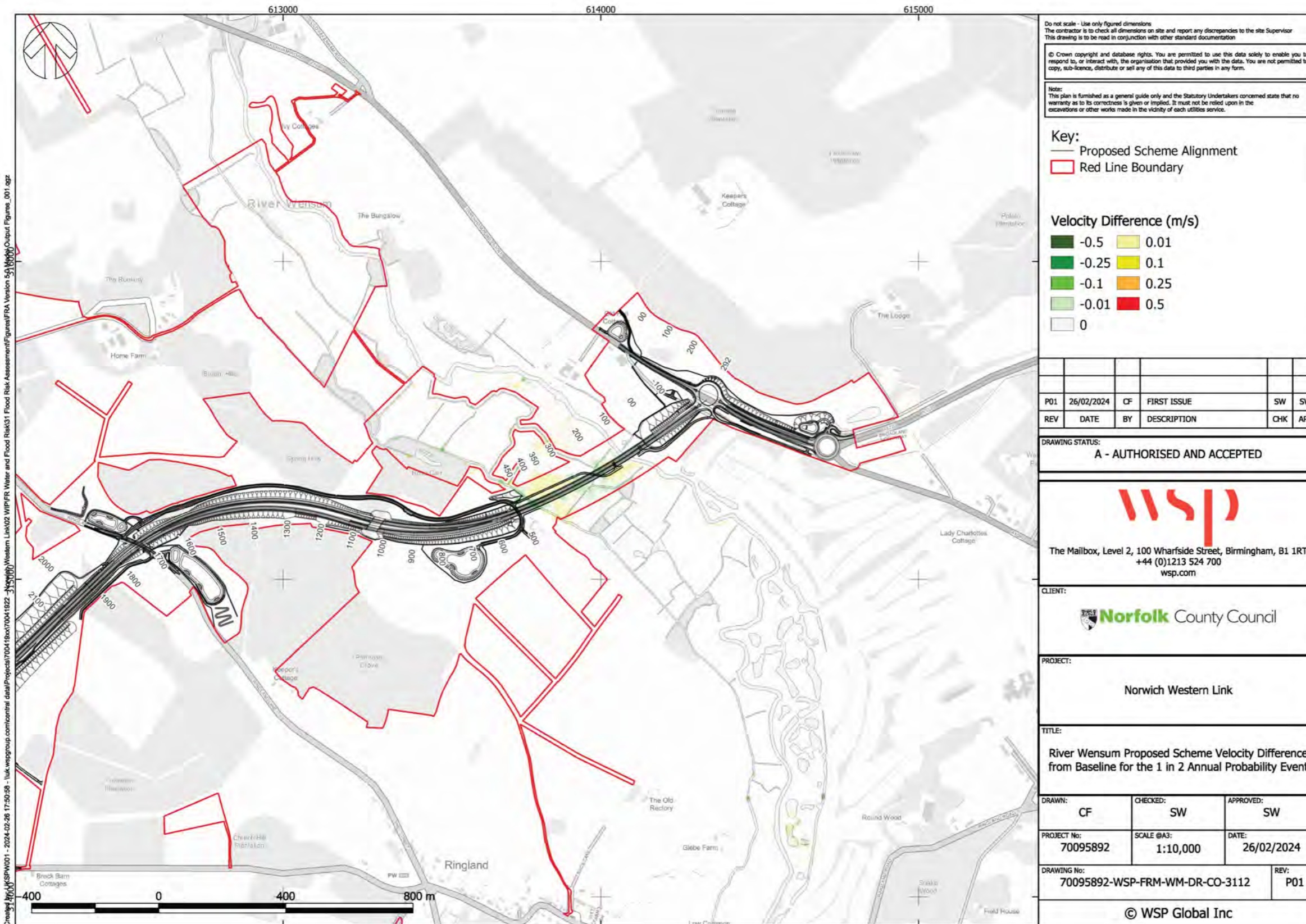
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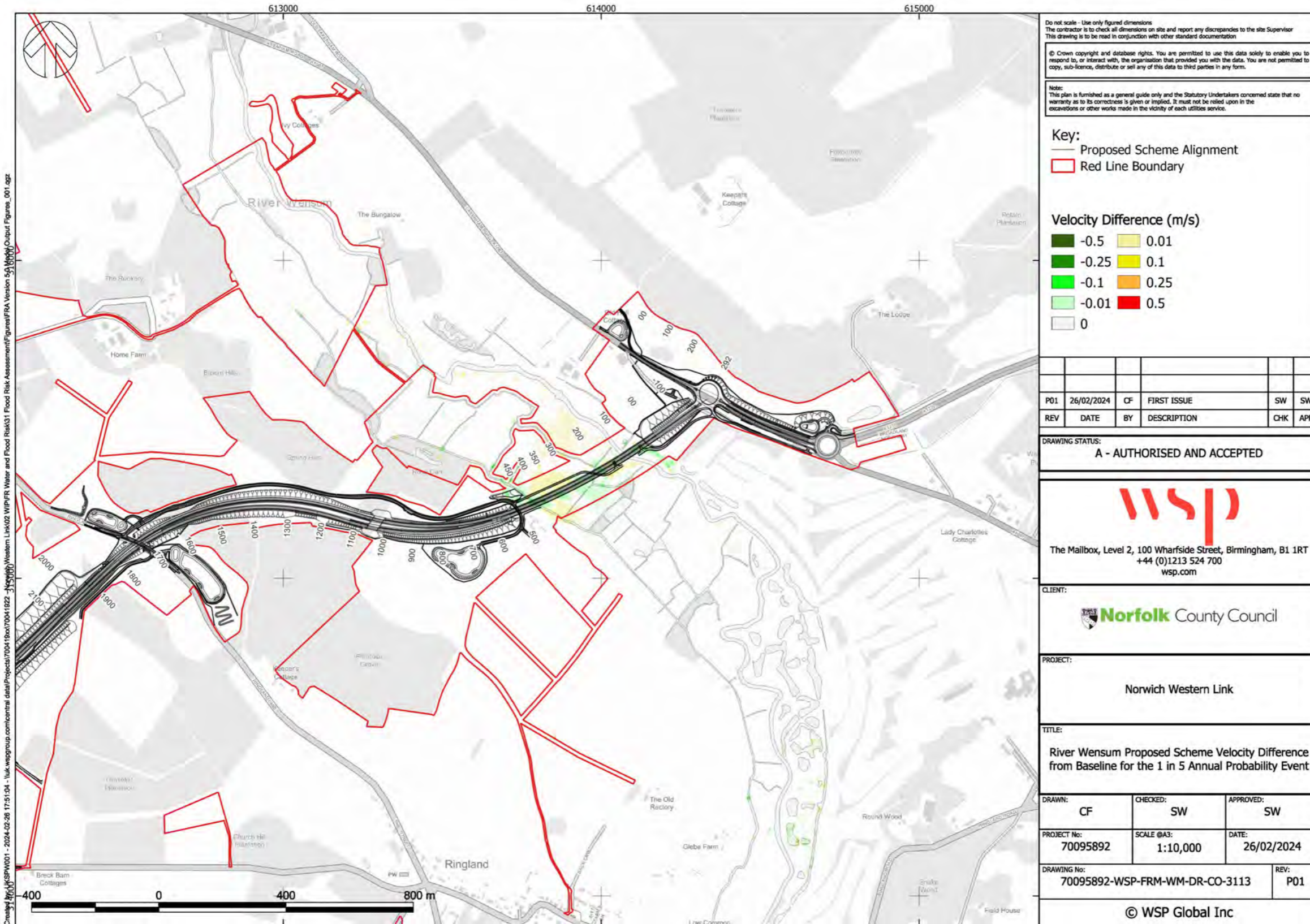
River Wensum reservoir breach proposed scheme depth difference from baseline in the 1 in 100+44% annual probability event



River Wensum proposed scheme velocity difference from baseline in the 1 in 2 annual probability event



River Wensum proposed scheme velocity difference from baseline in the 1 in 5 annual probability event



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Key:
— Proposed Scheme Alignment
 Red Line Boundary

Velocity Difference (m/s)

	-0.5		0.01
	-0.25		0.1
	-0.1		0.25
	-0.01		0.5
	0		

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River Wensum Proposed Scheme Velocity Difference from Baseline for the 1 in 5 Annual Probability Event

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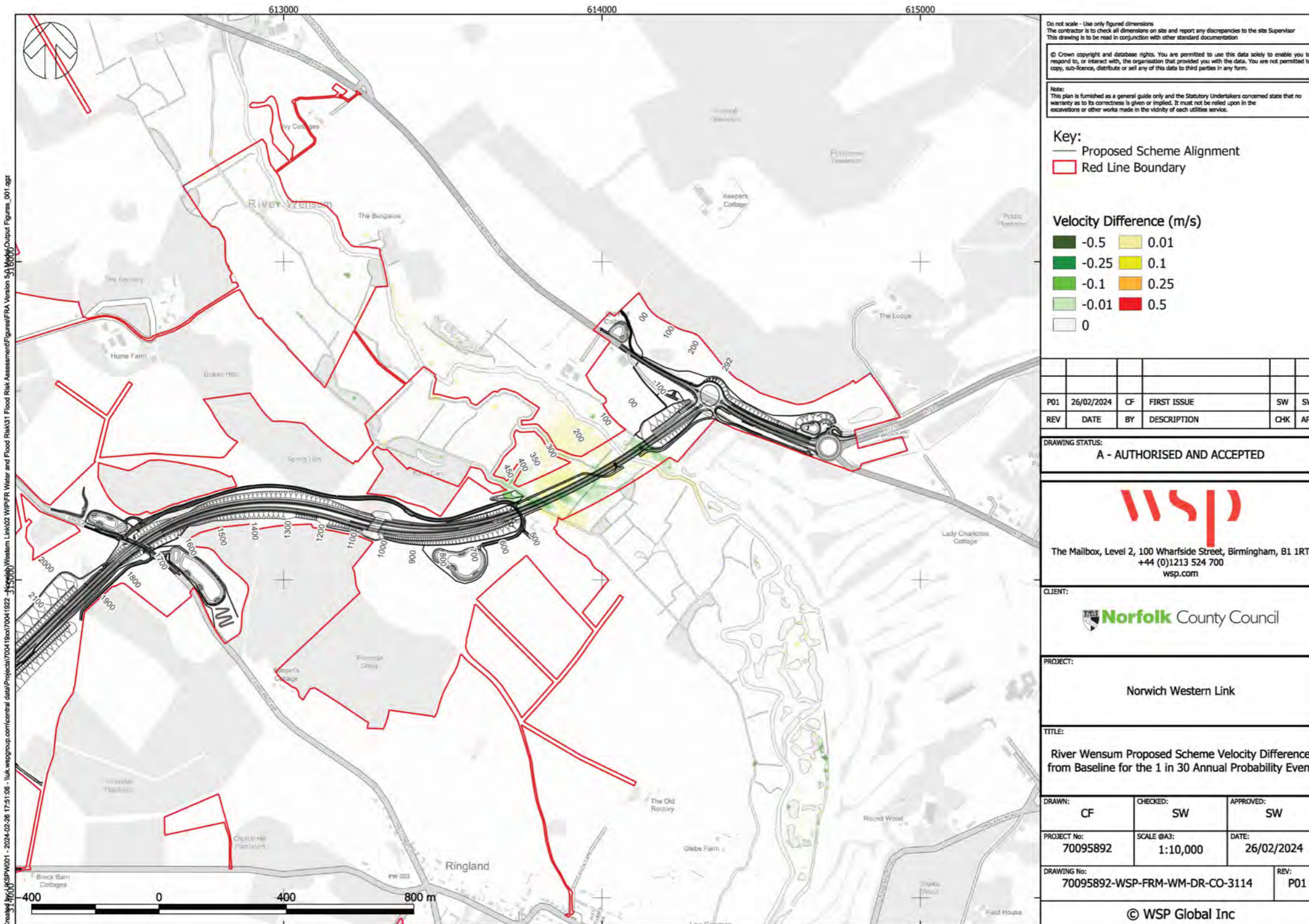
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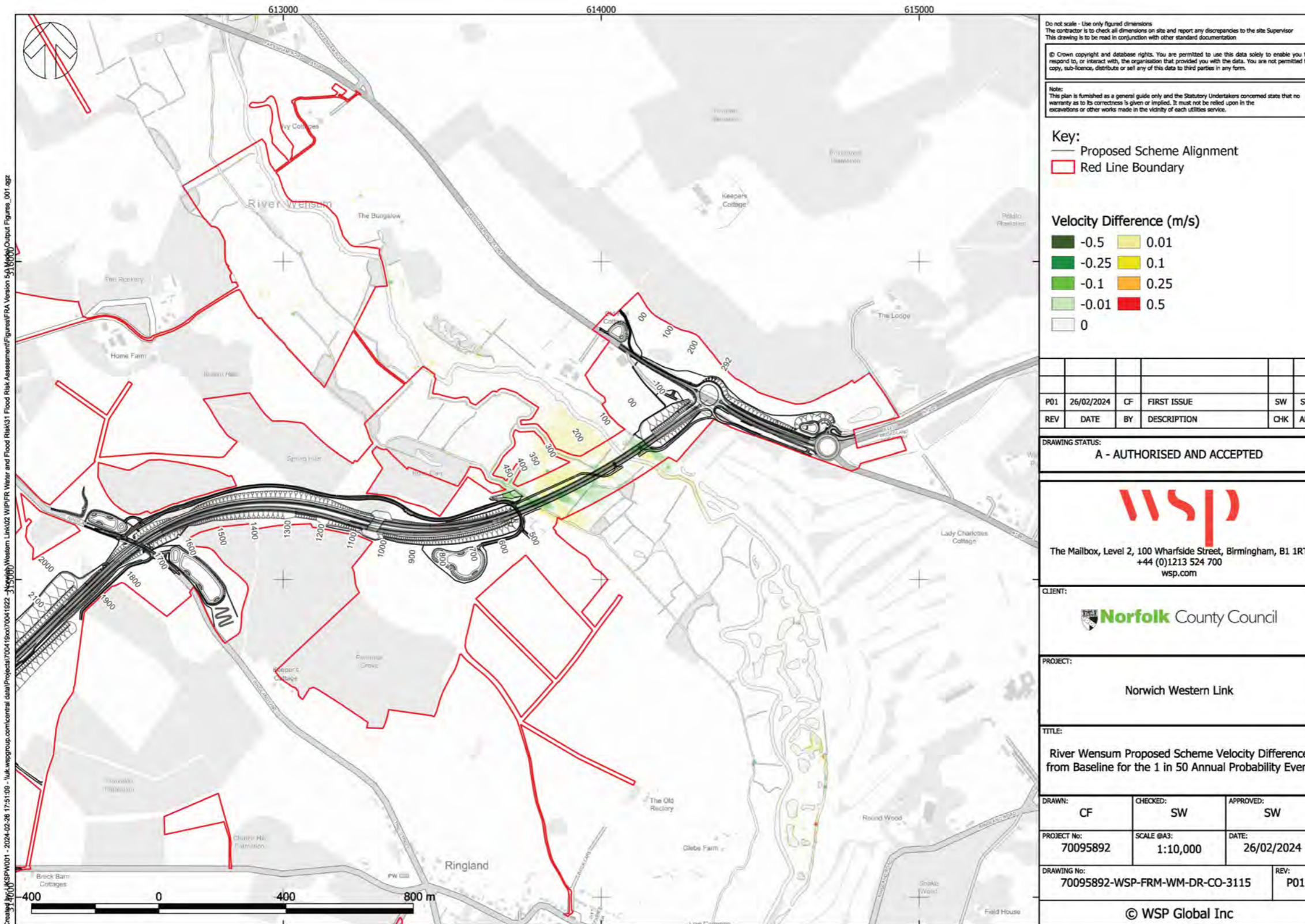
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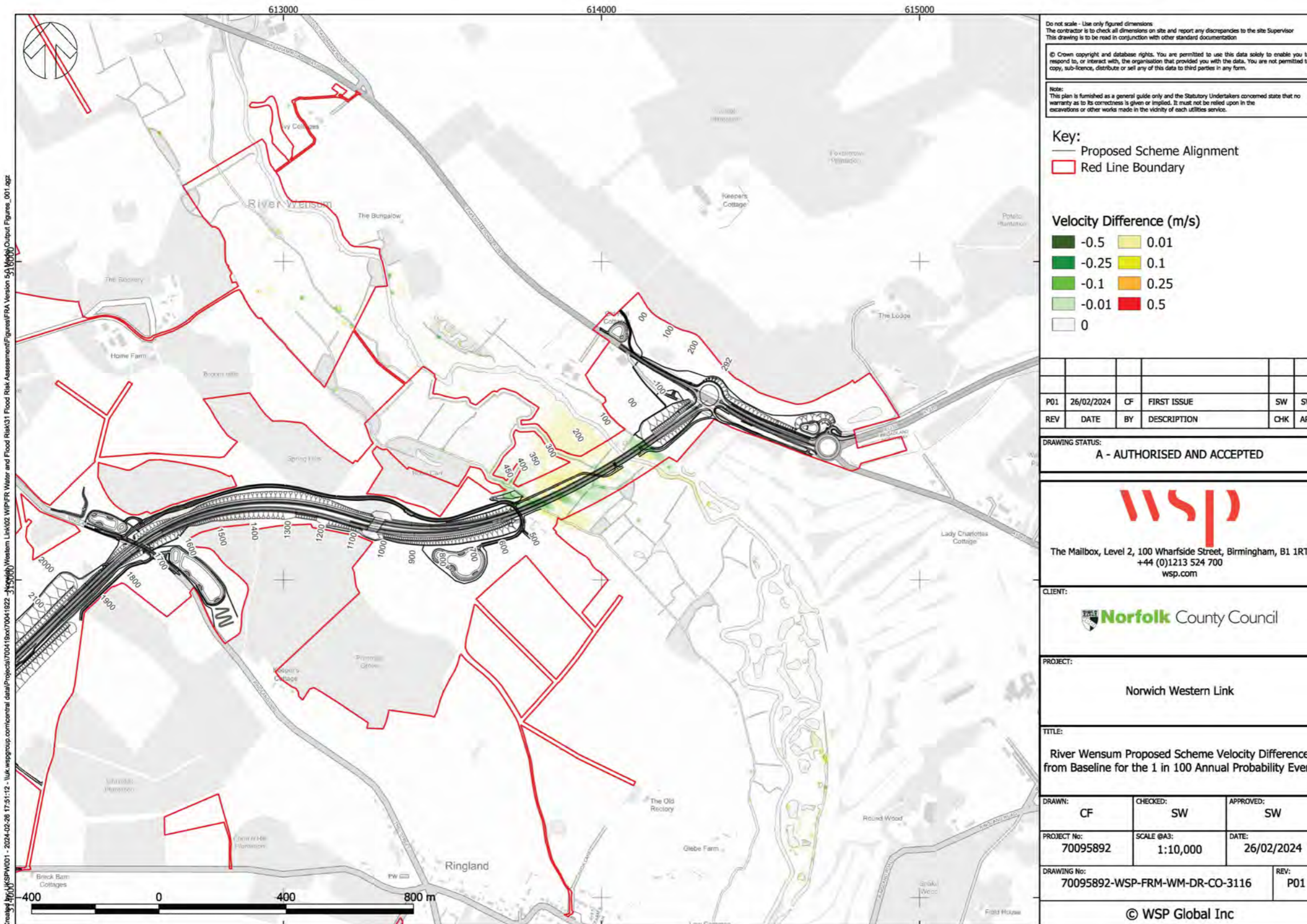
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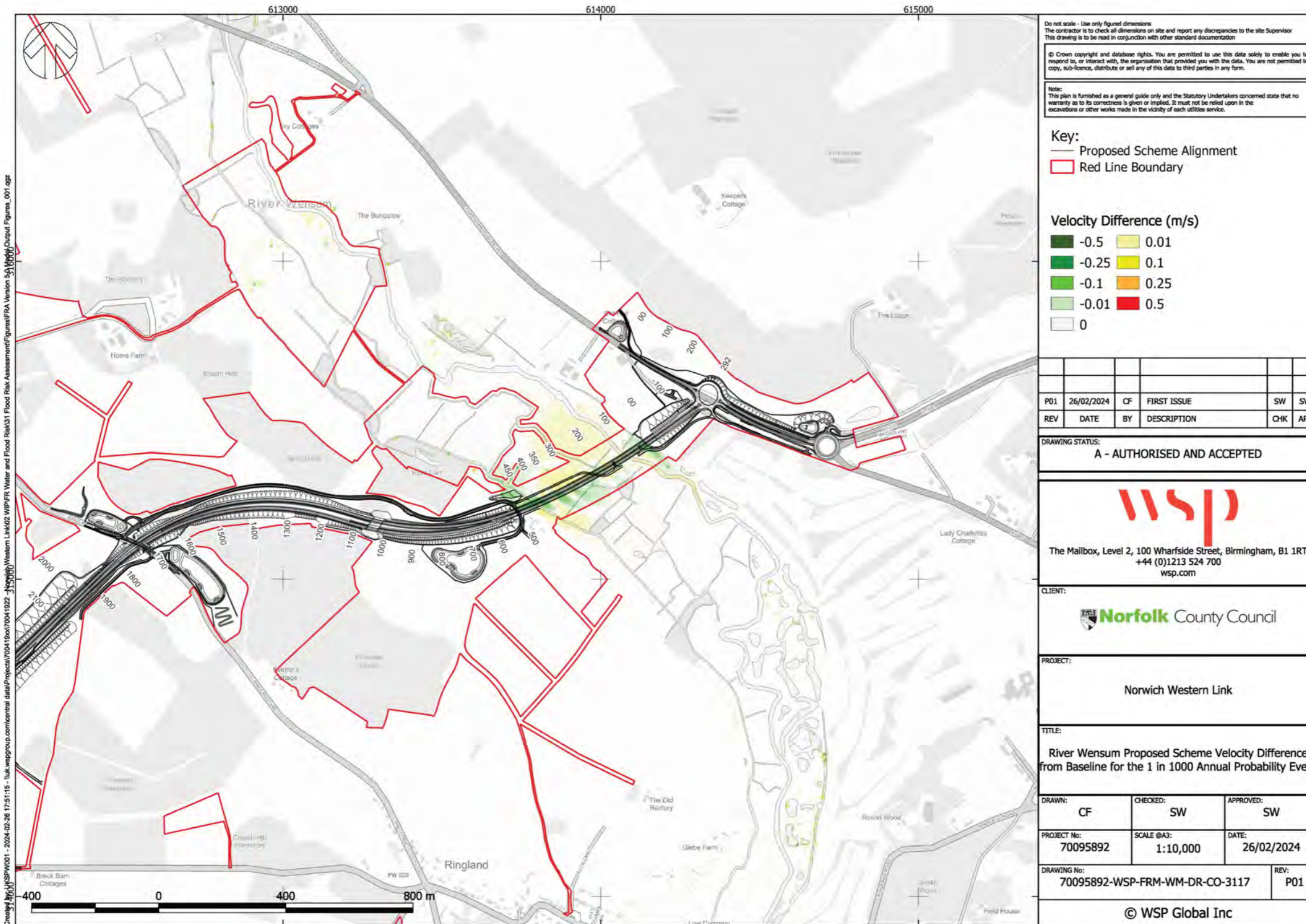
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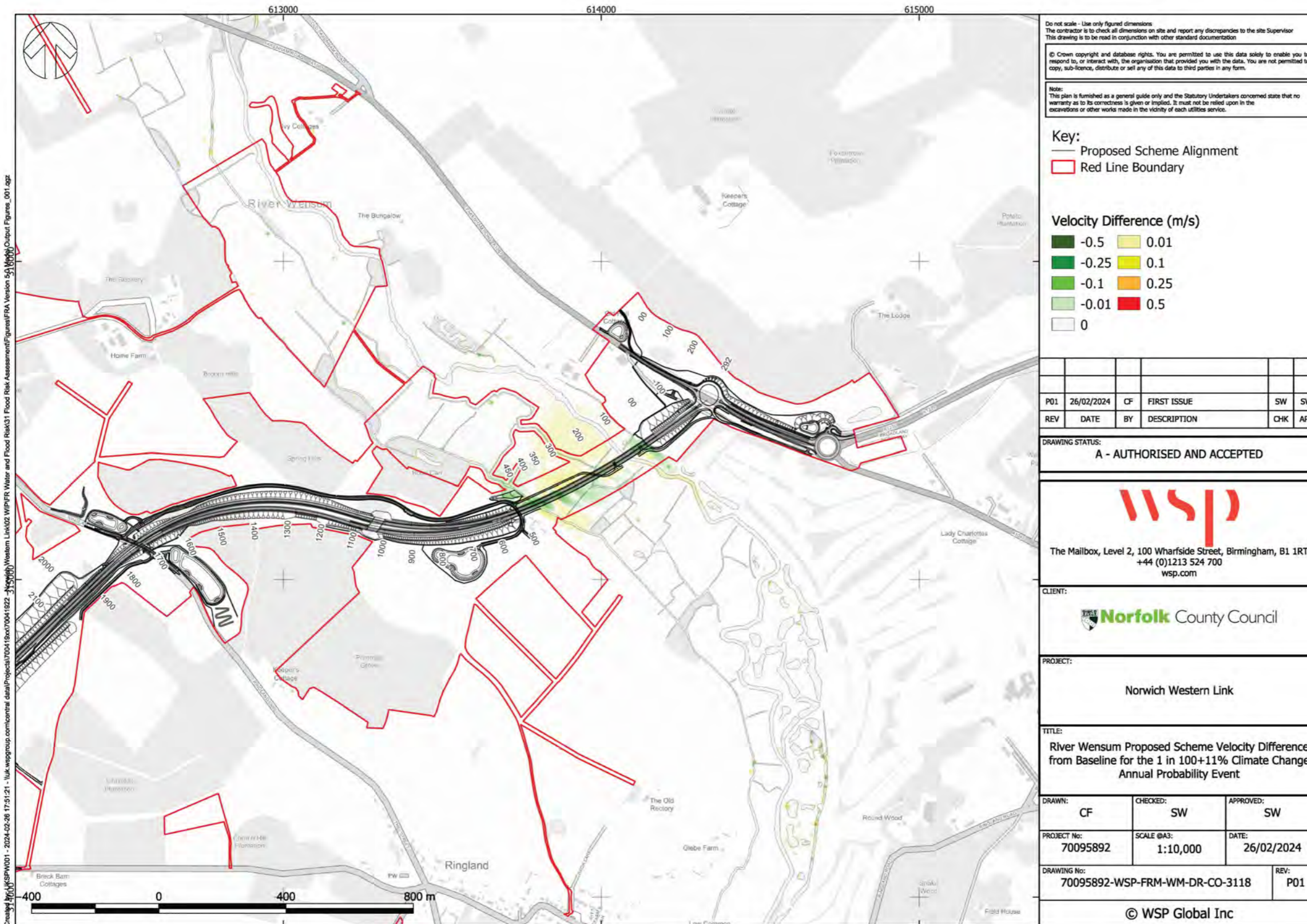
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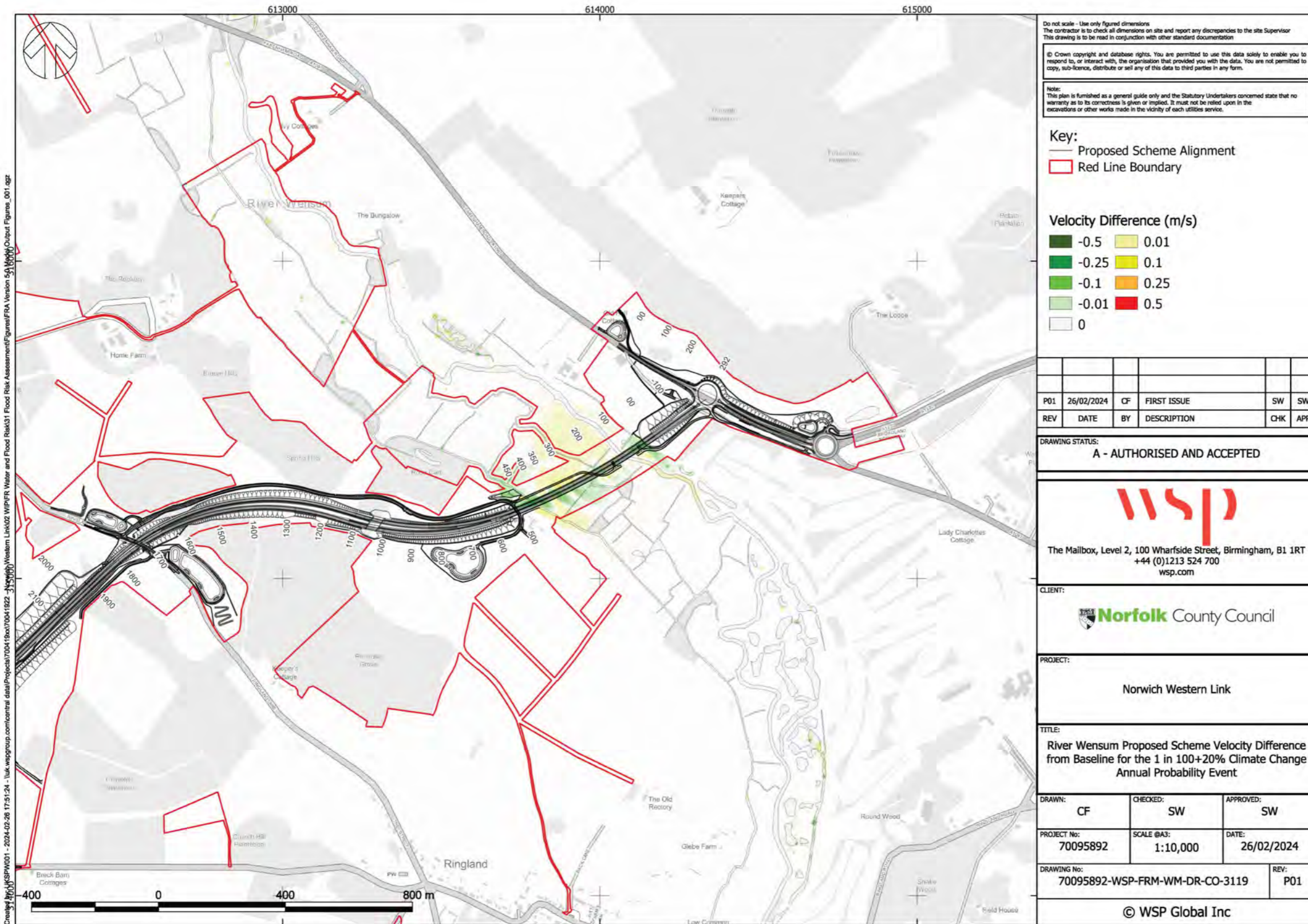
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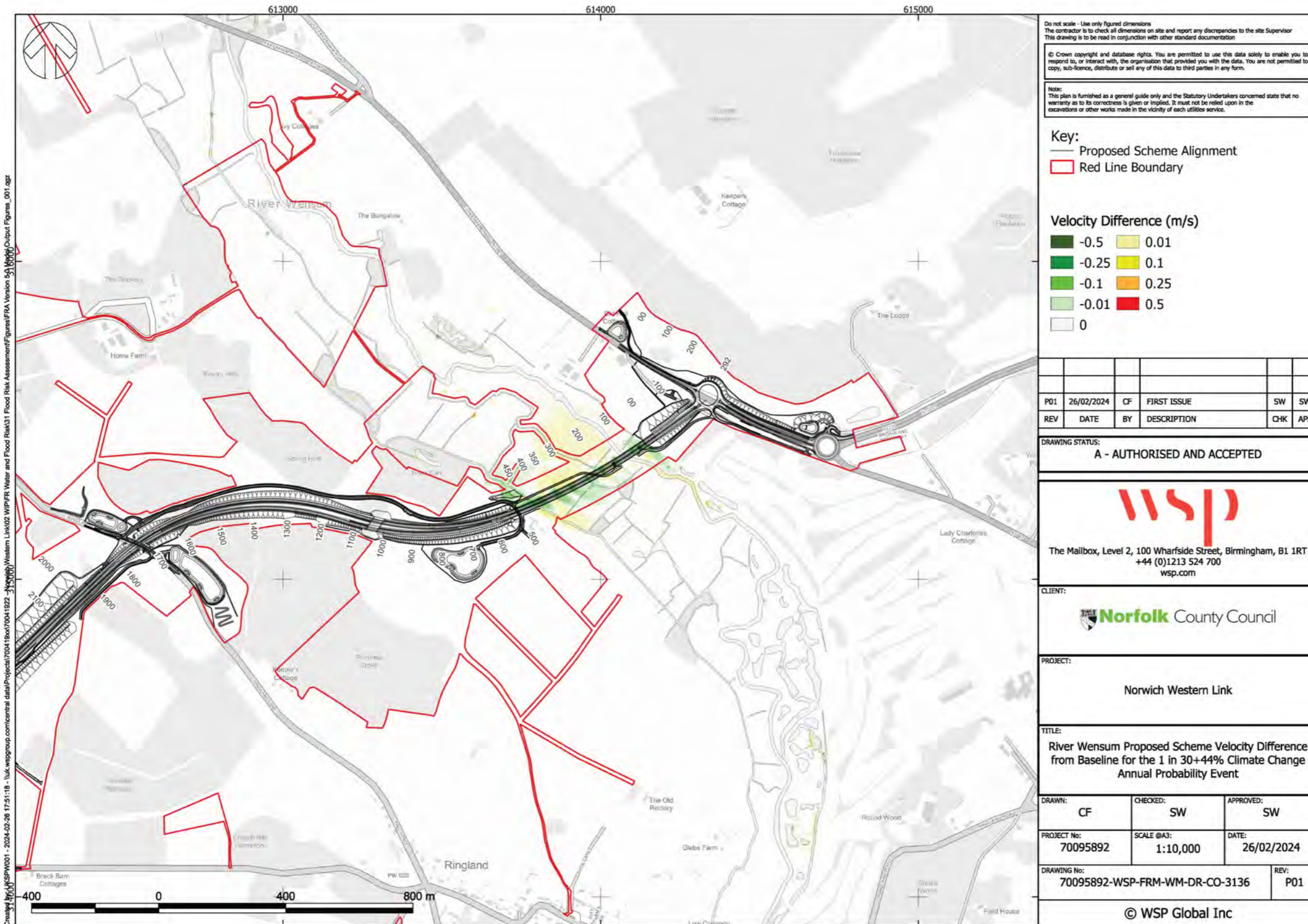
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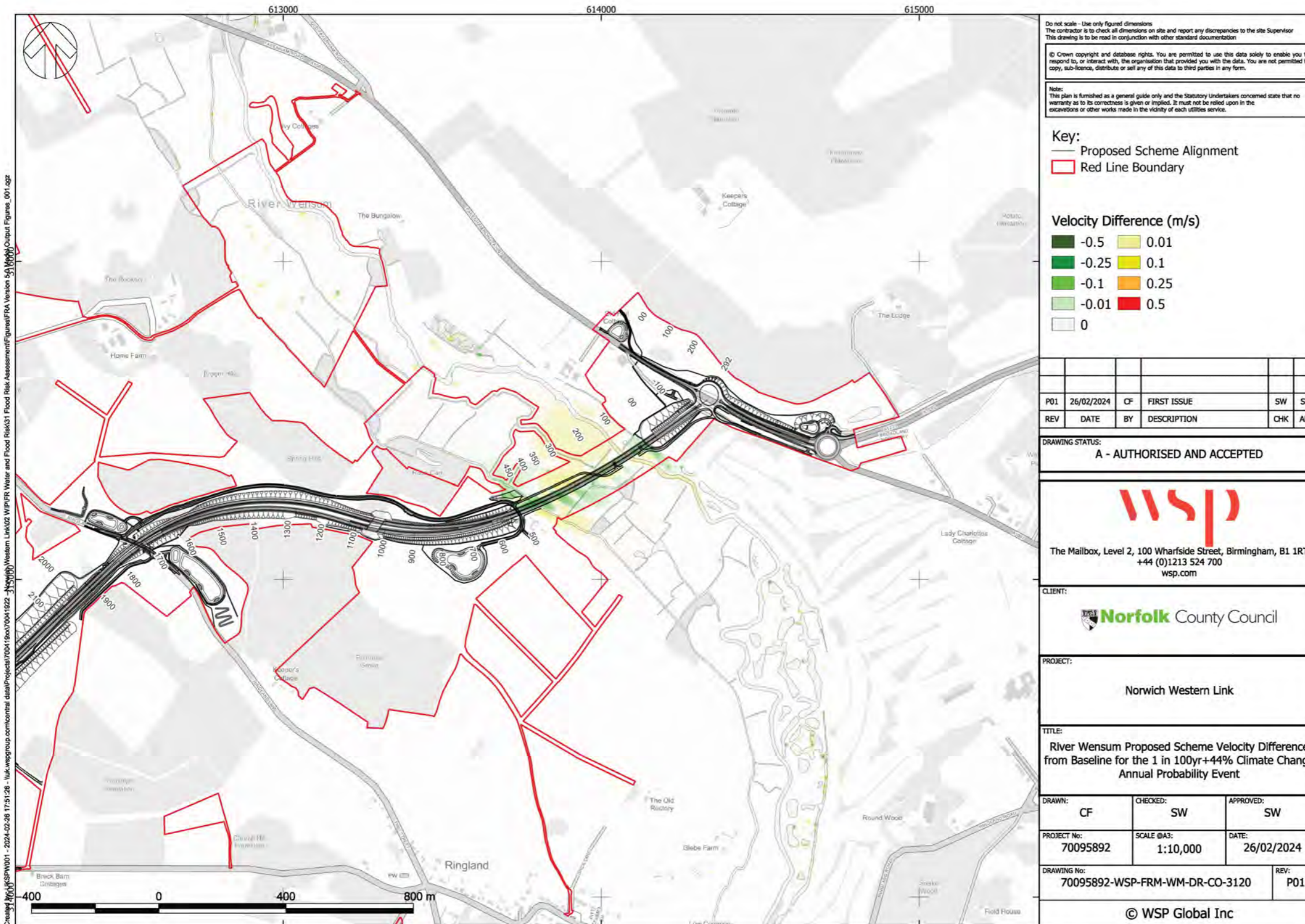
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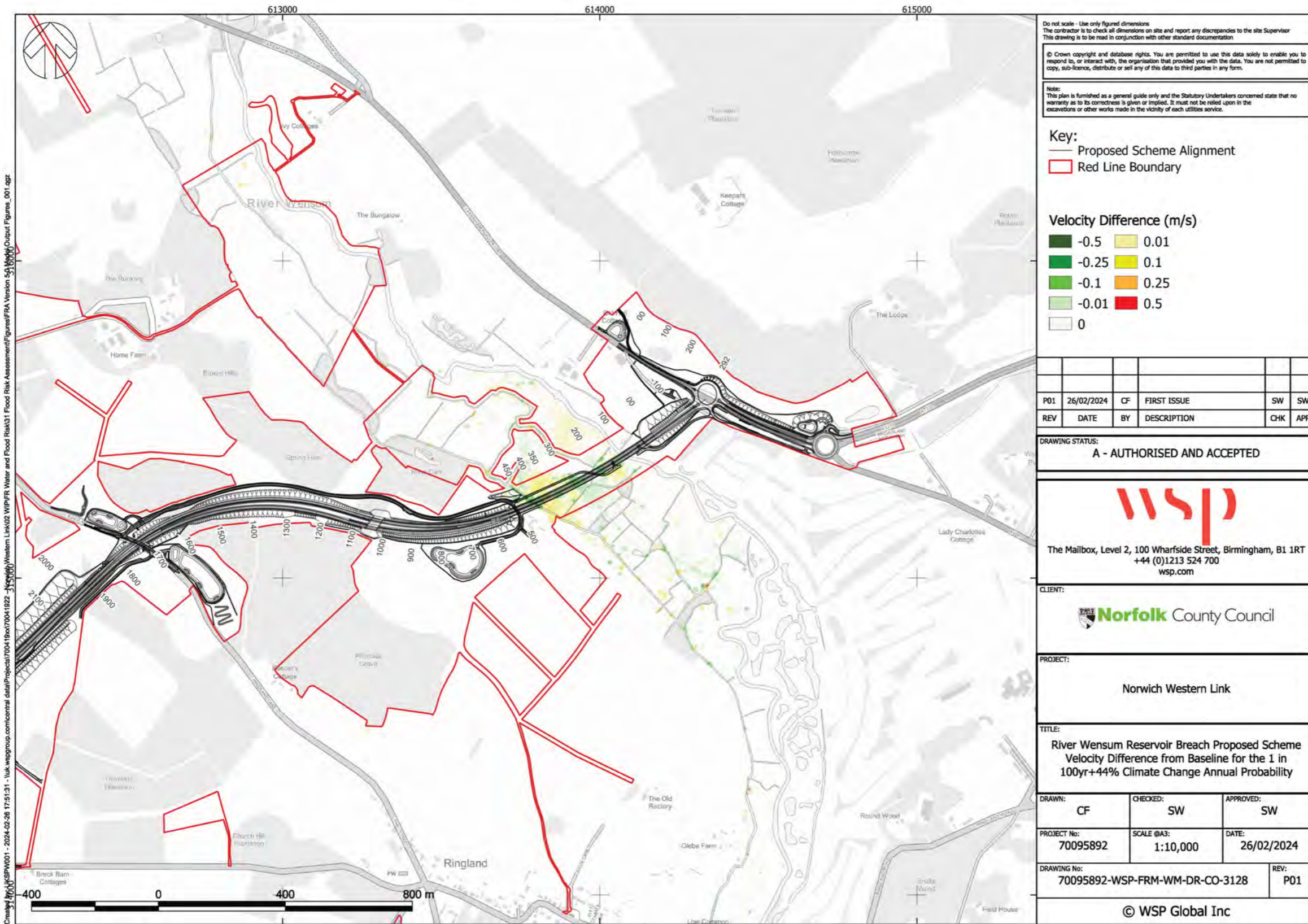
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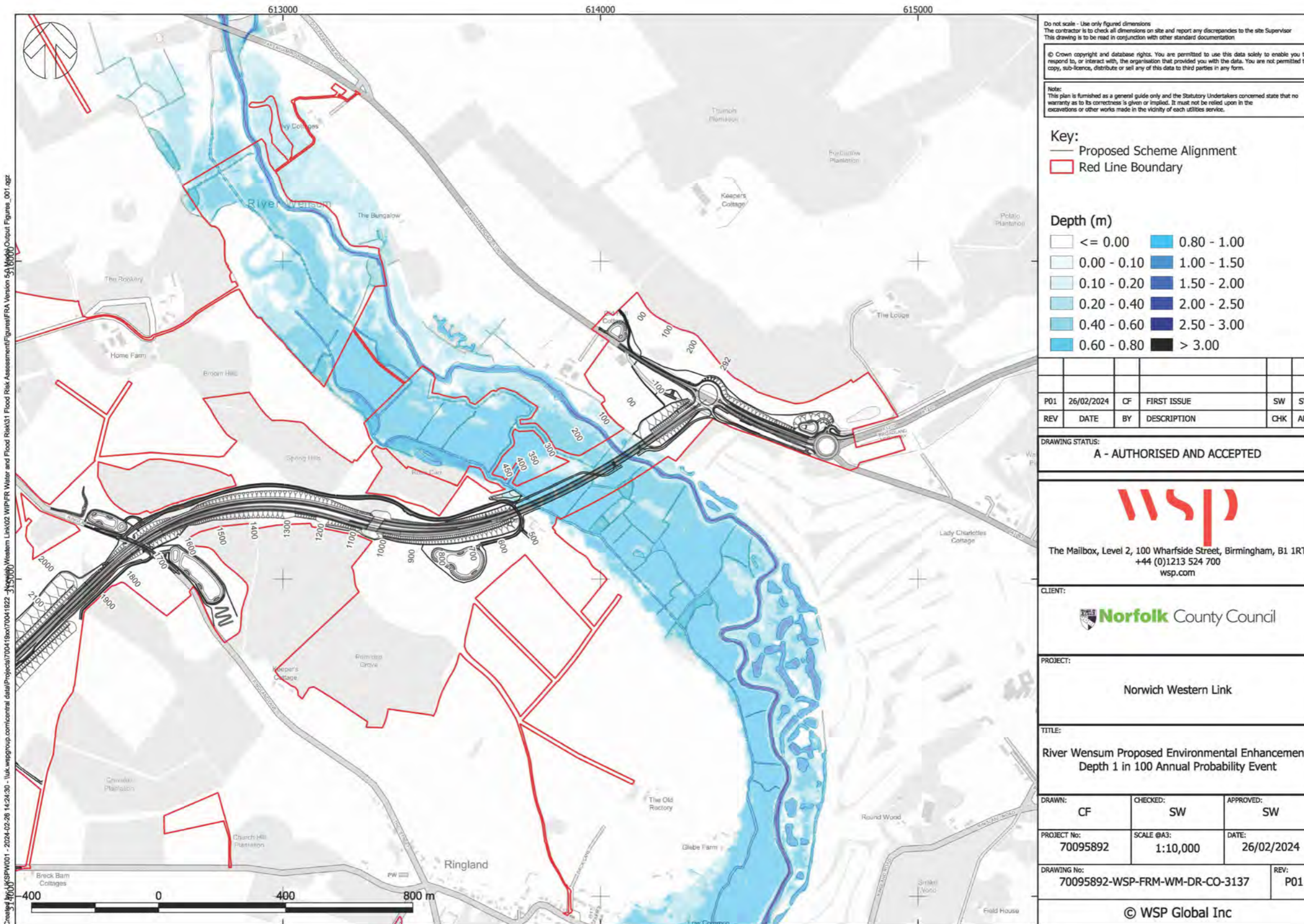
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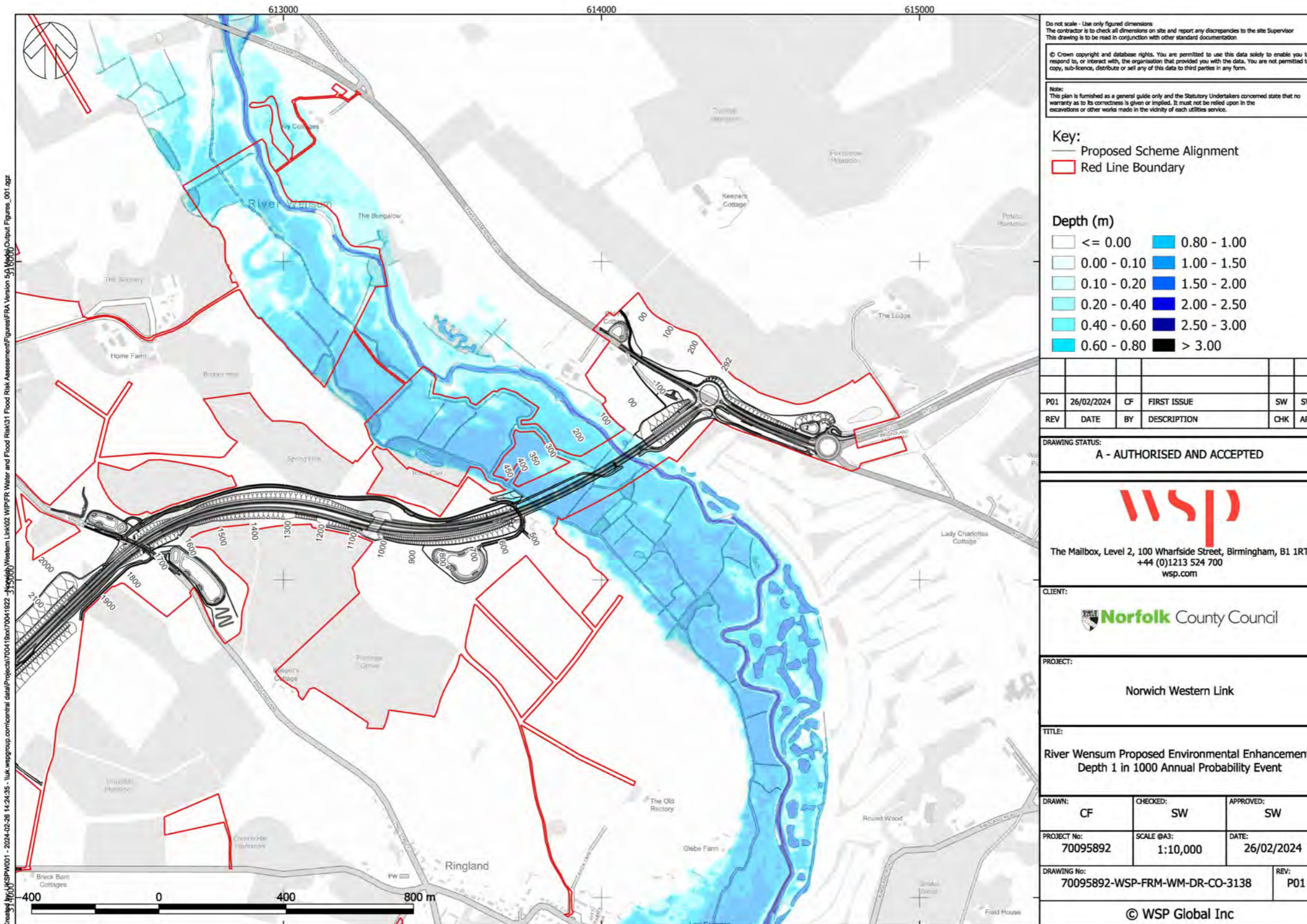
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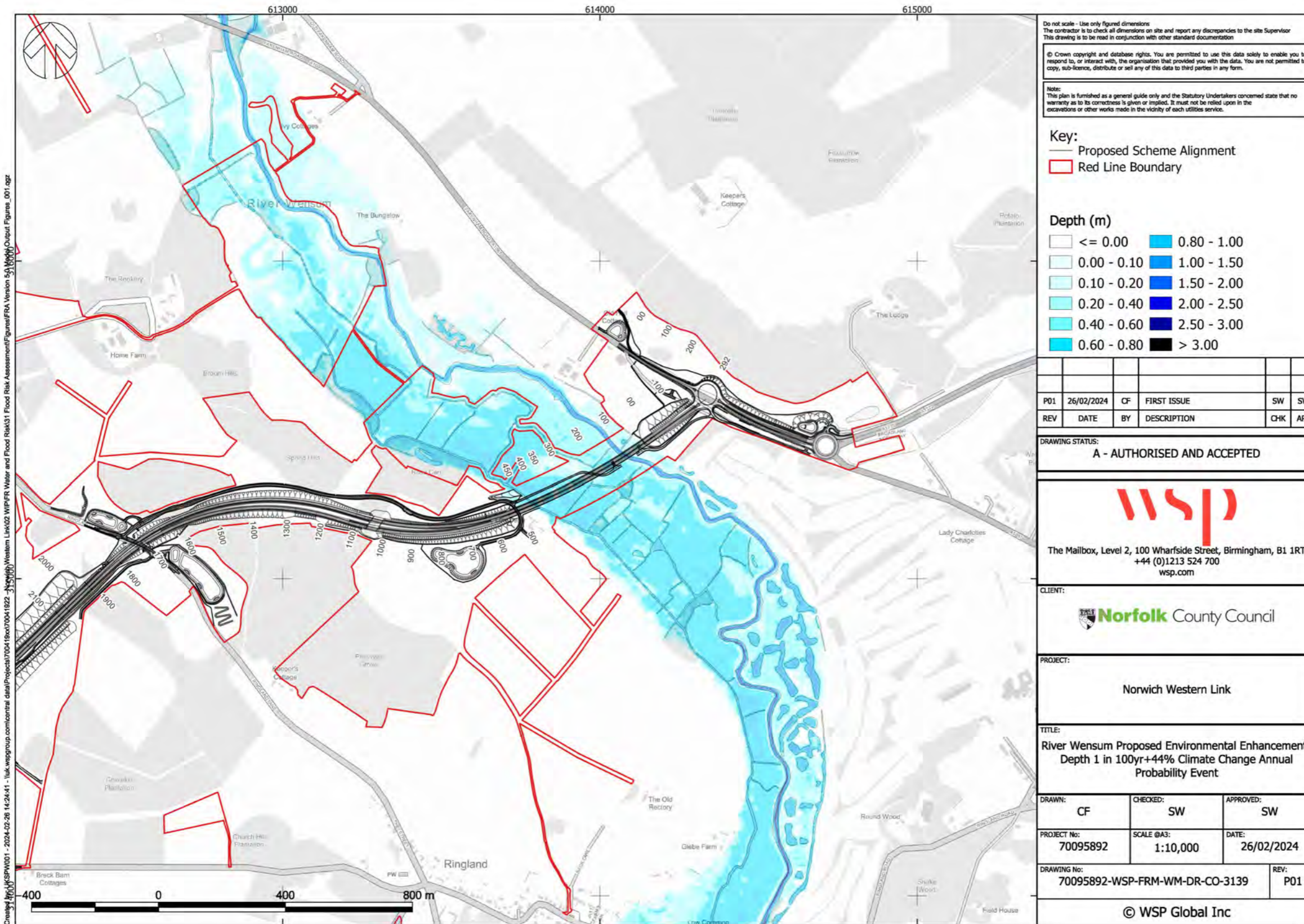
River Wensum environmental enhancements depth 1 in 100 annual probability event



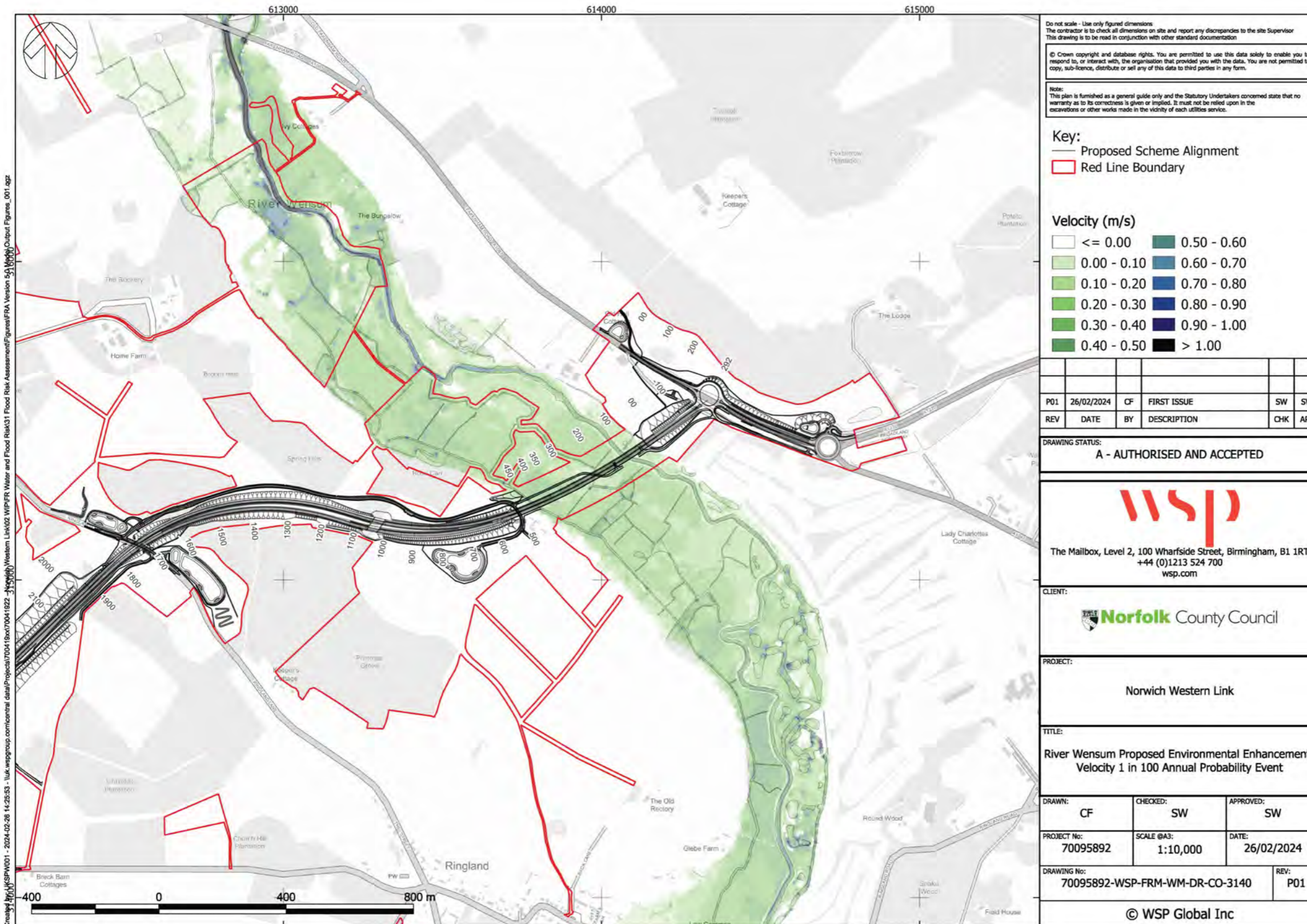
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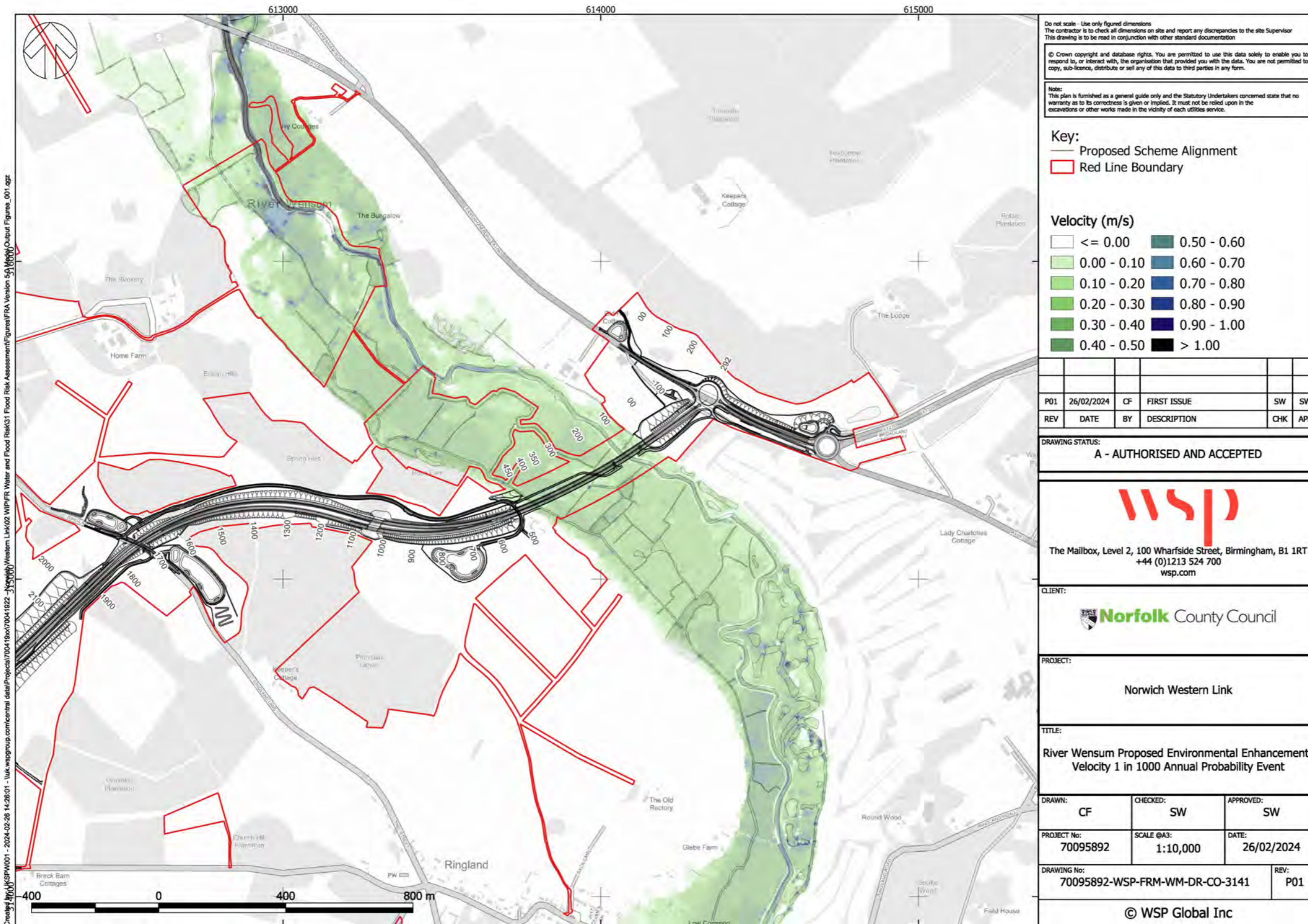
River Wensum environmental enhancements depth 1 in 100+44% annual probability event



River Wensum environmental enhancements velocity 1 in 100 annual probability event



River Wensum environmental enhancements velocity 1 in 1000 annual probability event



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Key:
 Proposed Scheme Alignment
 Red Line Boundary

Velocity (m/s)

<= 0.00	0.50 - 0.60
0.00 - 0.10	0.60 - 0.70
0.10 - 0.20	0.70 - 0.80
0.20 - 0.30	0.80 - 0.90
0.30 - 0.40	0.90 - 1.00
0.40 - 0.50	> 1.00

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Velocity 1 in 1000 Annual Probability Event

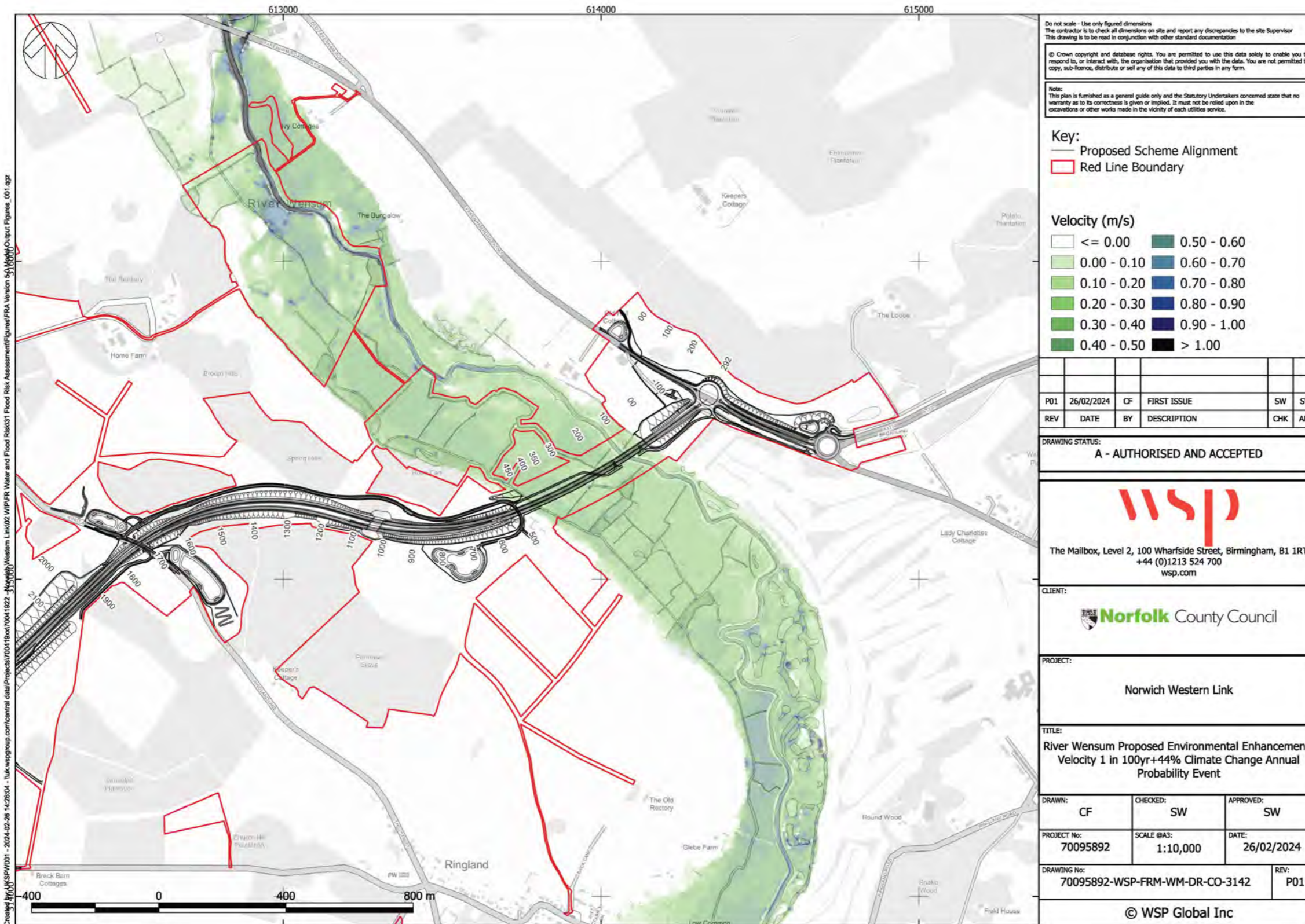
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River Wensum environmental enhancements velocity 1 in 100+44% annual probability event















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Key:
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Velocity (m/s)

	≤ 0.00		0.50 - 0.60
	0.00 - 0.10		0.60 - 0.70
	0.10 - 0.20		0.70 - 0.80
	0.20 - 0.30		0.80 - 0.90
	0.30 - 0.40		0.90 - 1.00
	0.40 - 0.50		> 1.00

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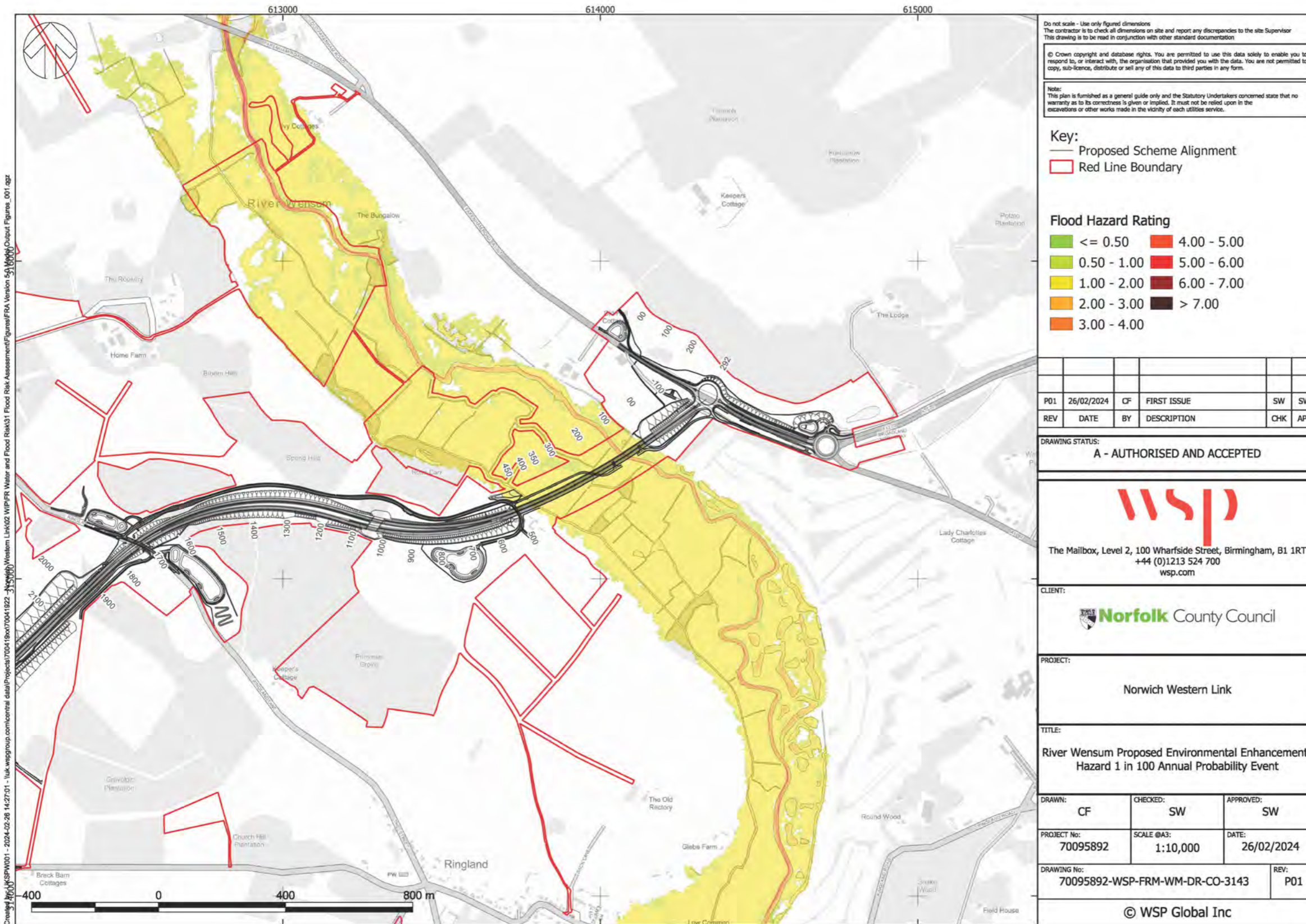
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Velocity 1 in 100yr+44% Climate Change Annual
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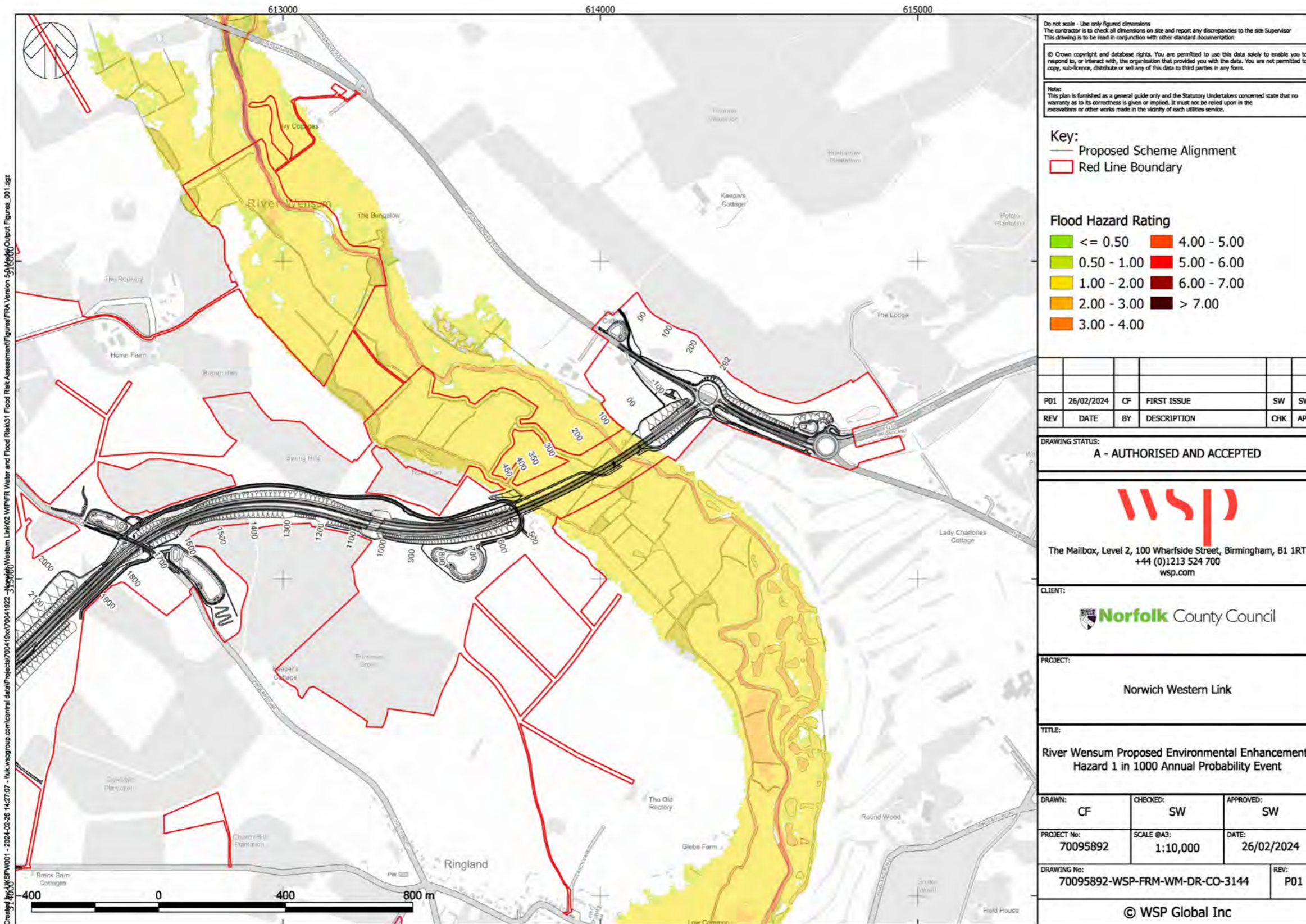
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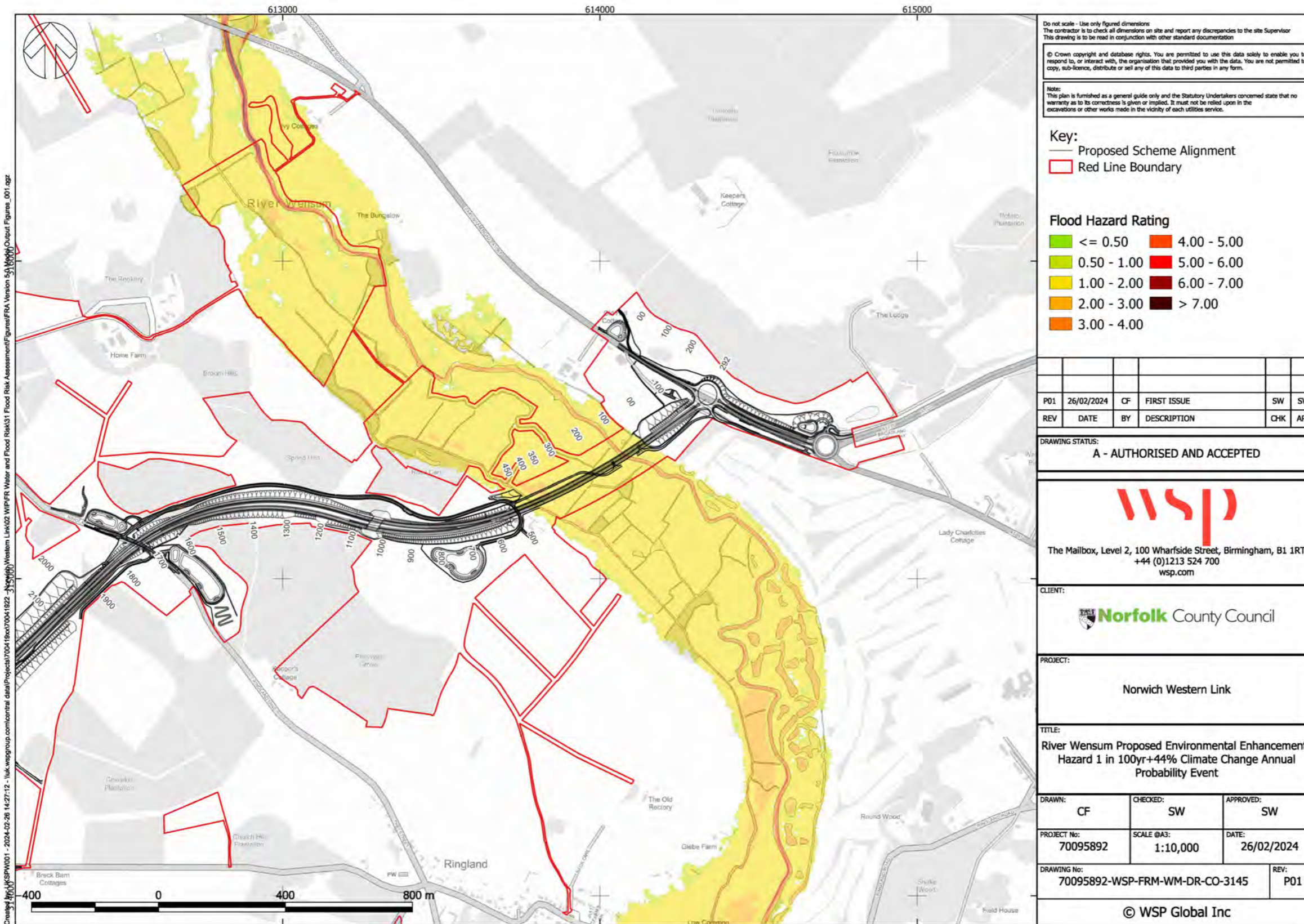
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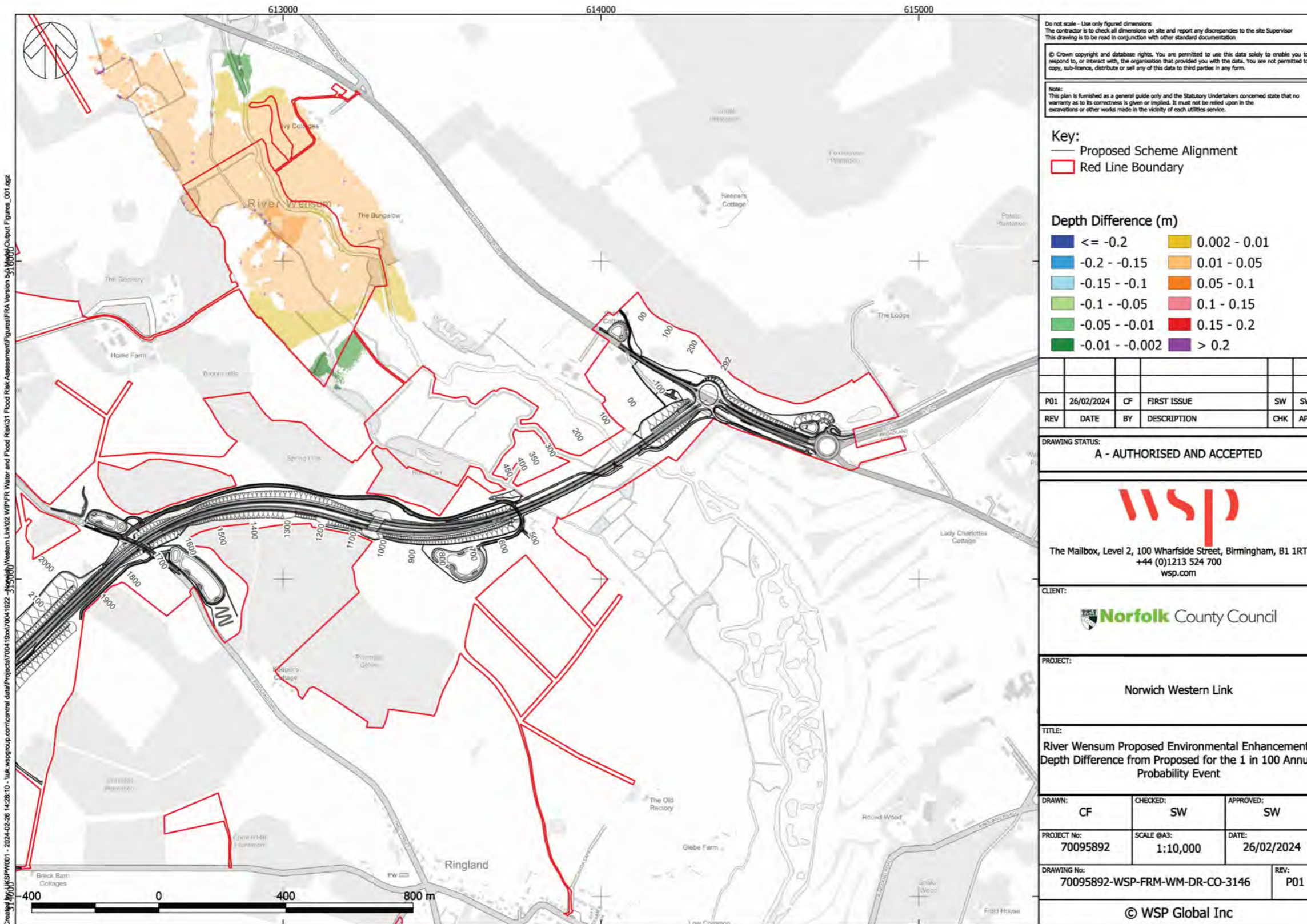
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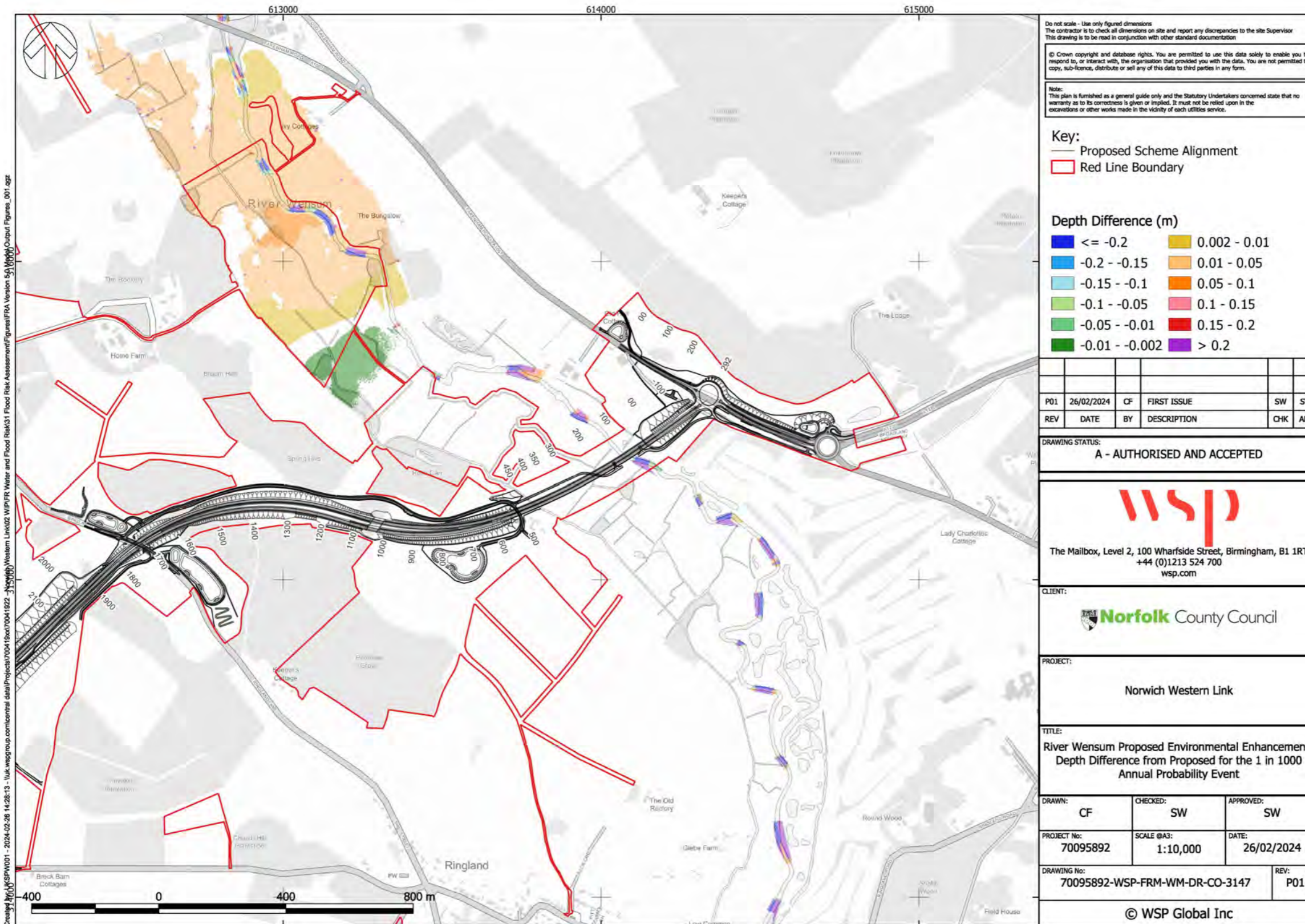
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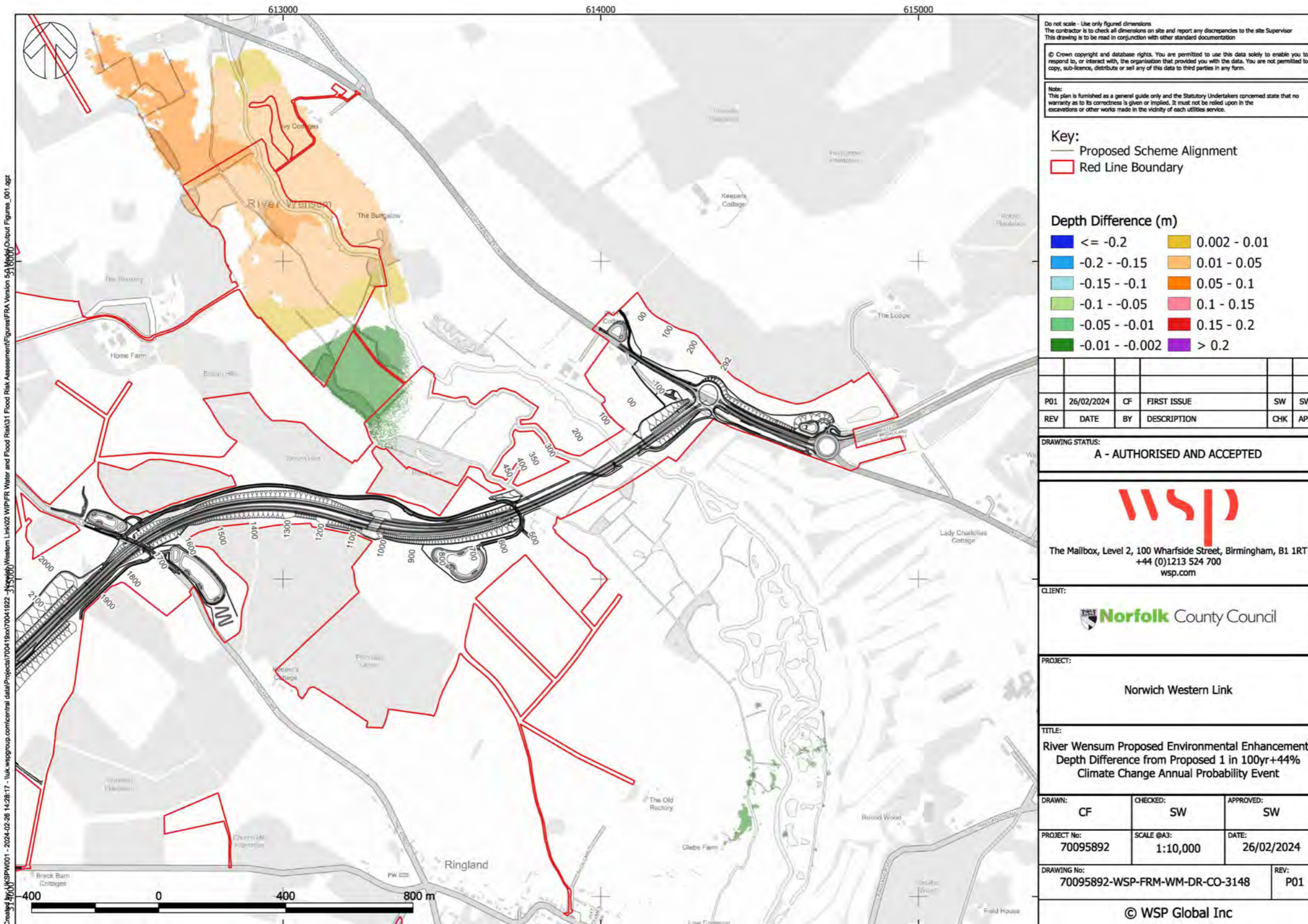
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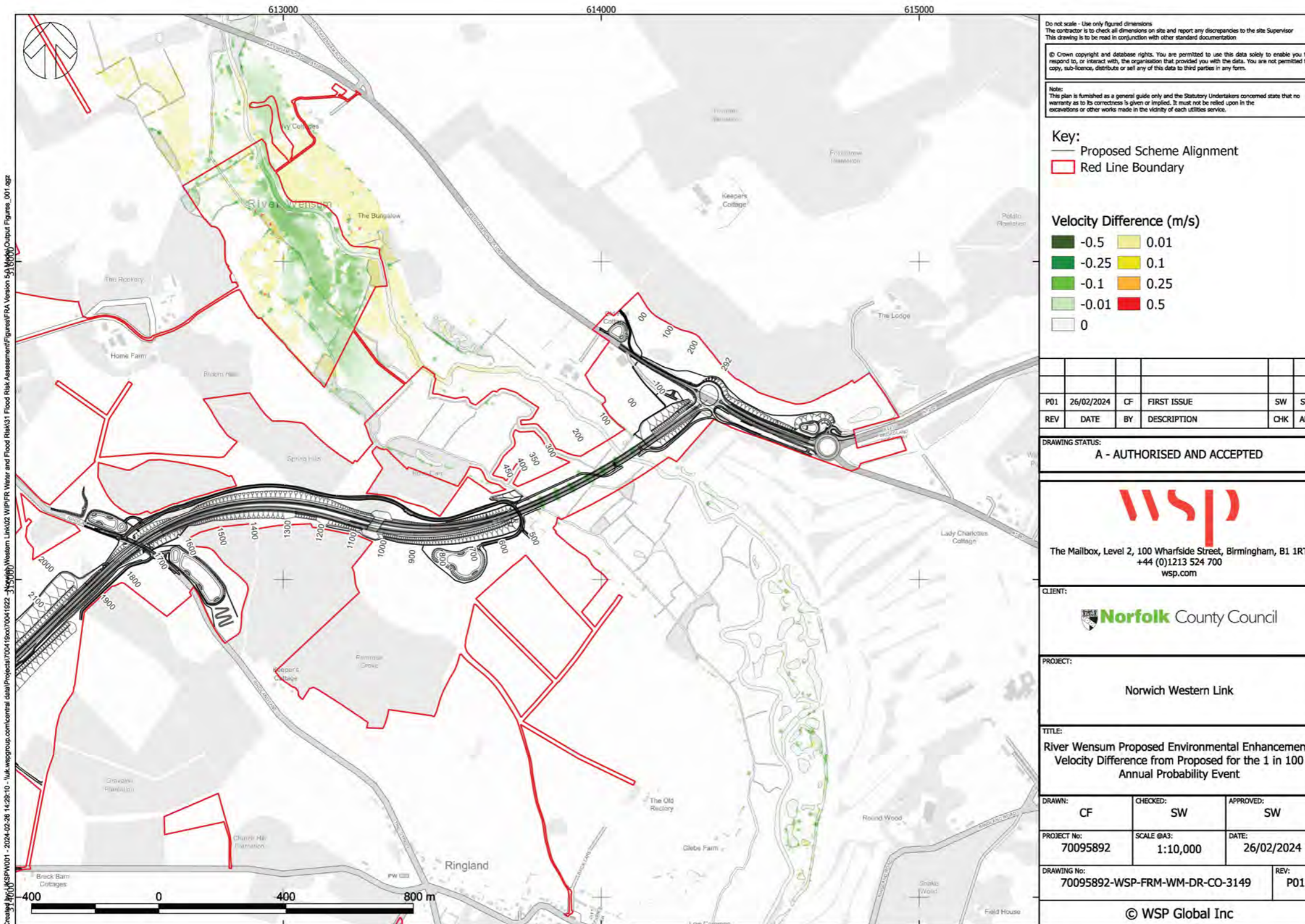
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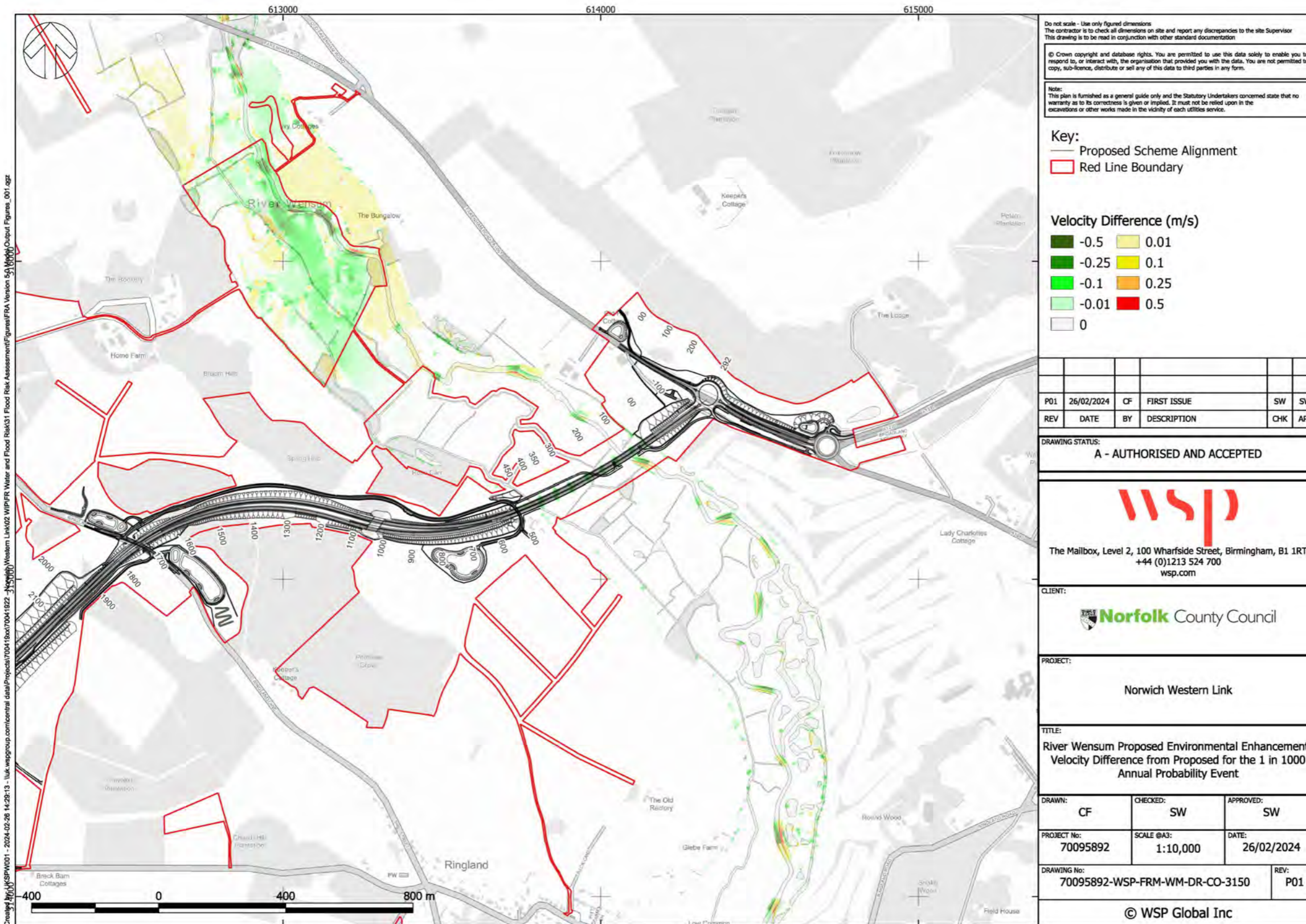
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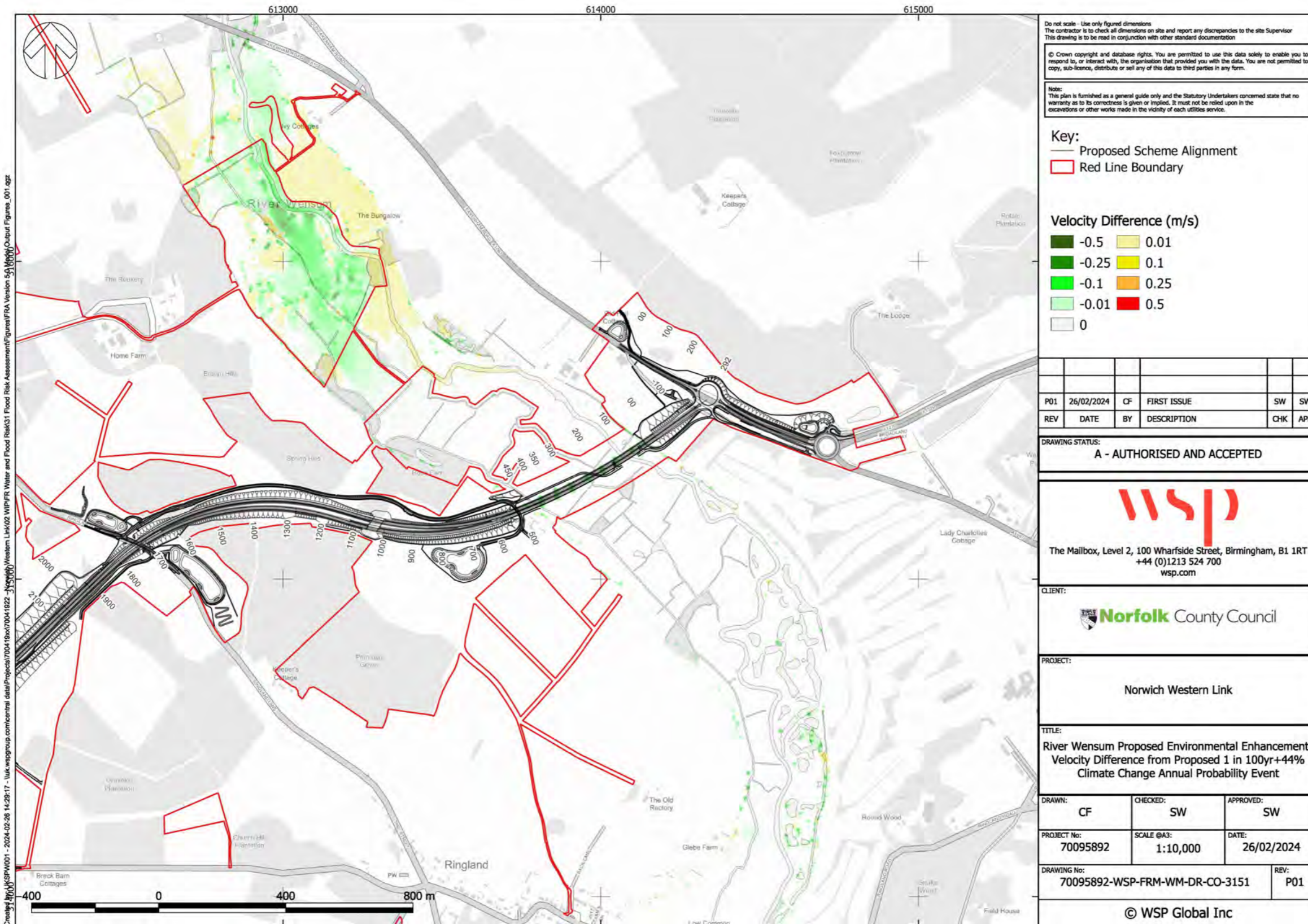
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River Wensum environmental enhancements velocity difference from proposed in the 1 in 1000 annual probability event



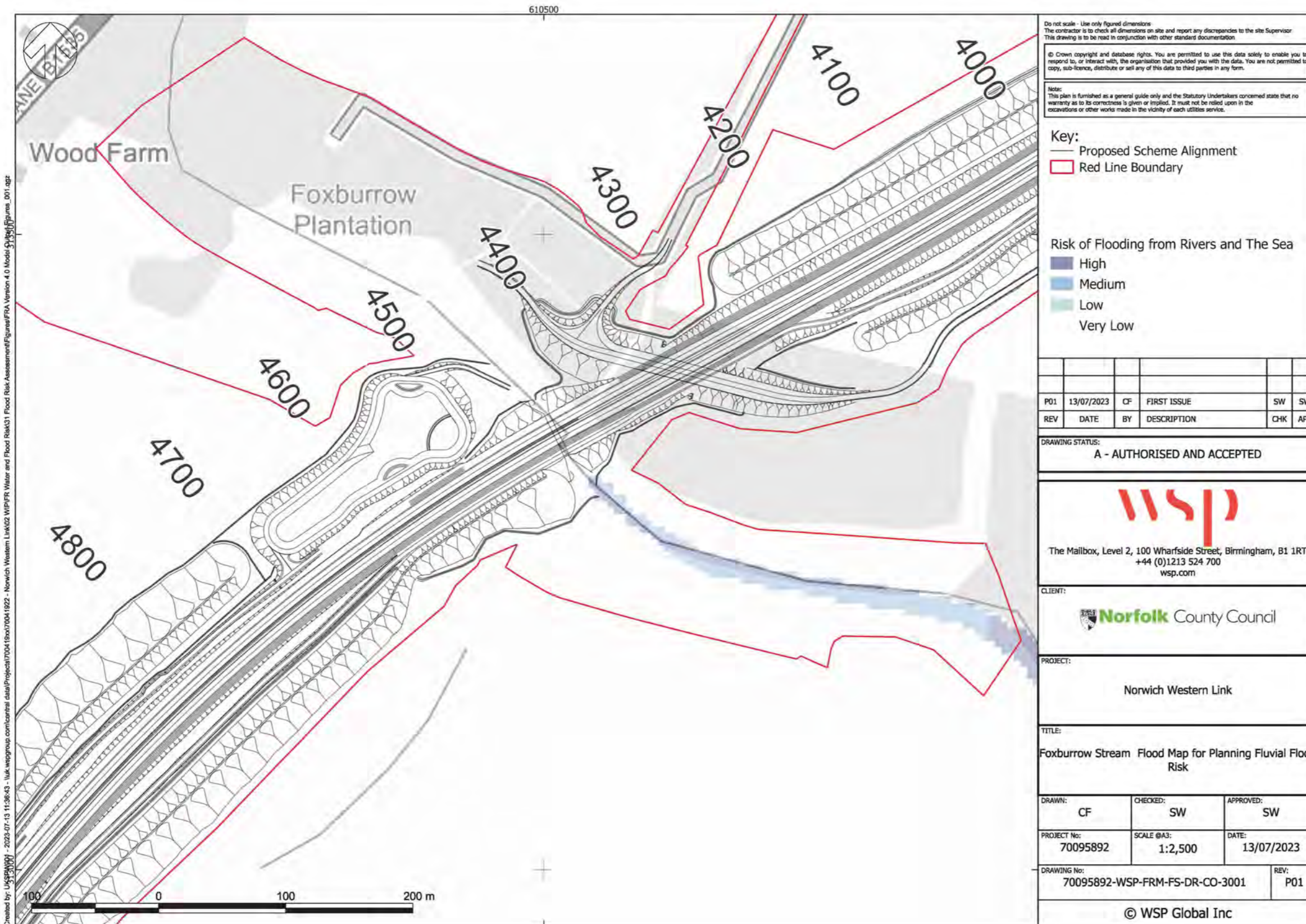
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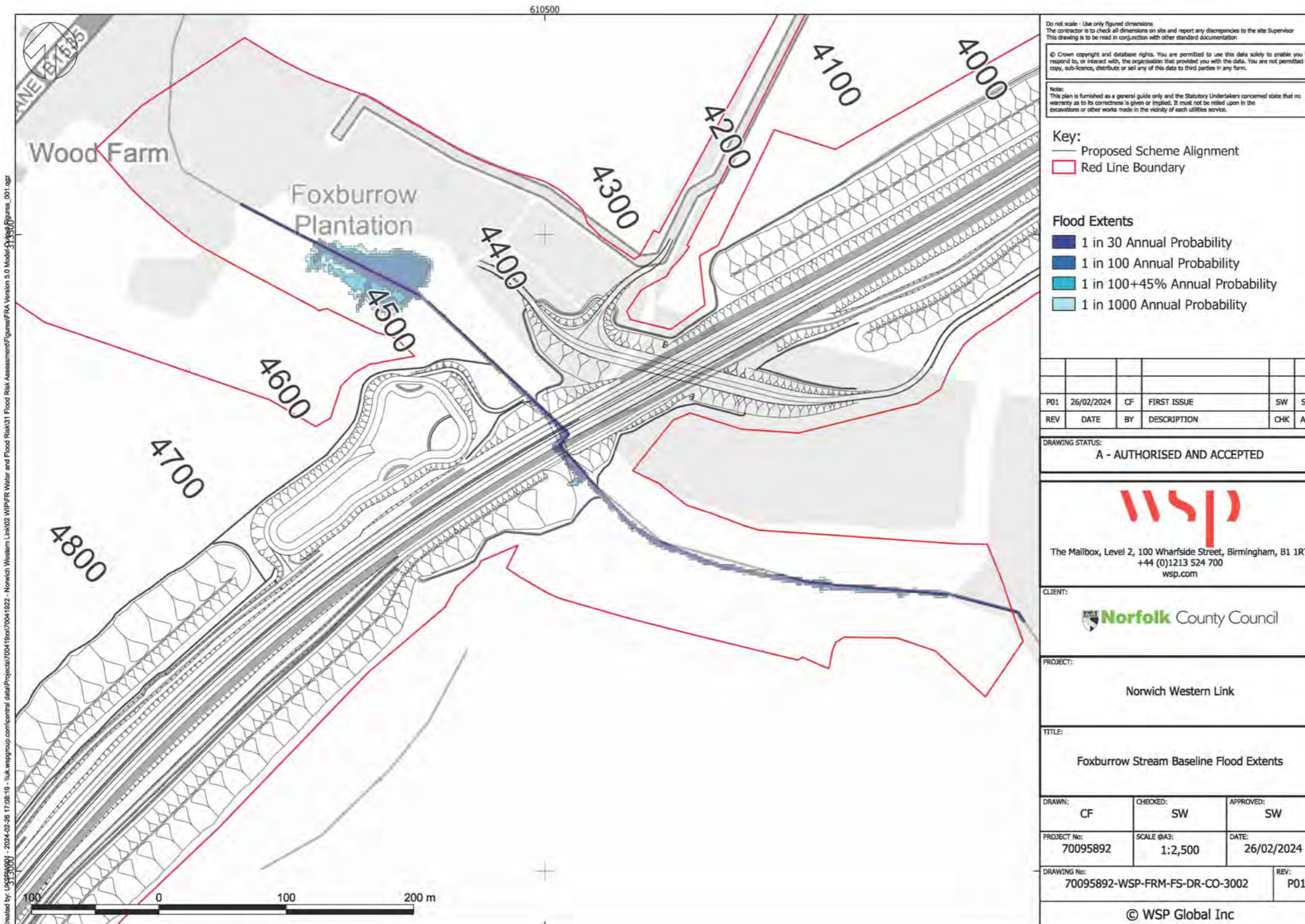
Foxburrow Stream

The following figures present the flood risk associated with Foxburrow Stream. They present the existing risk from the Flood Map for Planning. They also present the results of the detailed hydraulic modelling undertaken as part of the Flood Risk Assessment. The modelling results presented include depths mapping in the existing case and with the proposed scheme in place. Maps are presented for the 1 in 30, 100, 1000, 30+45% and 100+45% annual probability events. The differences in depth between the proposed and baseline are also presented.

Foxburrow Stream flood map for planning fluvial risk









Foxburrow Stream baseline flood extents



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- Key:**
-  Proposed Scheme Alignment
 -  Red Line Boundary
- Flood Extents**
-  1 in 30 Annual Probability
 -  1 in 100 Annual Probability
 -  1 in 100+45% Annual Probability
 -  1 in 1000 Annual Probability

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Foxburrow Stream Baseline Flood Extents

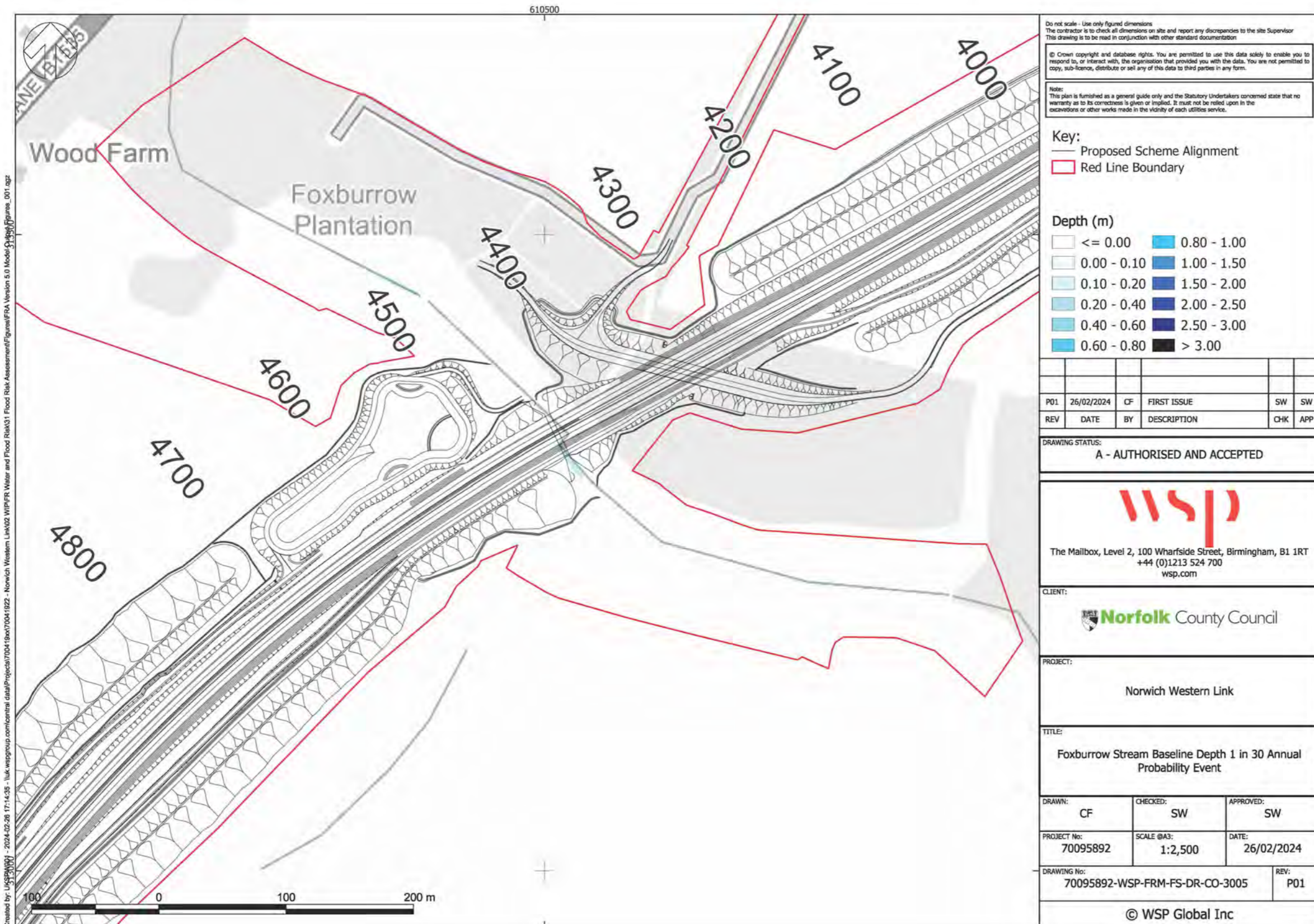
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Foxburrow Stream baseline depth 1 in 30 annual probability event



Do not scale - Use only figured dimensions
The contractor is to check all dimensions on site and report any discrepancies to the site Supervisor
This drawing is to be read in conjunction with other standard documentation

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Note:
This plan is furnished as a general guide only and the Statutory Undertakers concerned state that no warranty as to its correctness is given or implied. It must not be relied upon in the excavations or other works made in the vicinity of each utilities service.

Key:
— Proposed Scheme Alignment
□ Red Line Boundary

Depth (m)

<= 0.00	0.80 - 1.00
0.00 - 0.10	1.00 - 1.50
0.10 - 0.20	1.50 - 2.00
0.20 - 0.40	2.00 - 2.50
0.40 - 0.60	2.50 - 3.00
0.60 - 0.80	> 3.00

P01	26/02/2024	CF	FIRST ISSUE	SW	SW
REV	DATE	BY	DESCRIPTION	CHK	APP

DRAWING STATUS:
A - AUTHORISED AND ACCEPTED



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wsp.com

CLIENT:


PROJECT:
Norwich Western Link

TITLE:
Foxburrow Stream Baseline Depth 1 in 30 Annual Probability Event

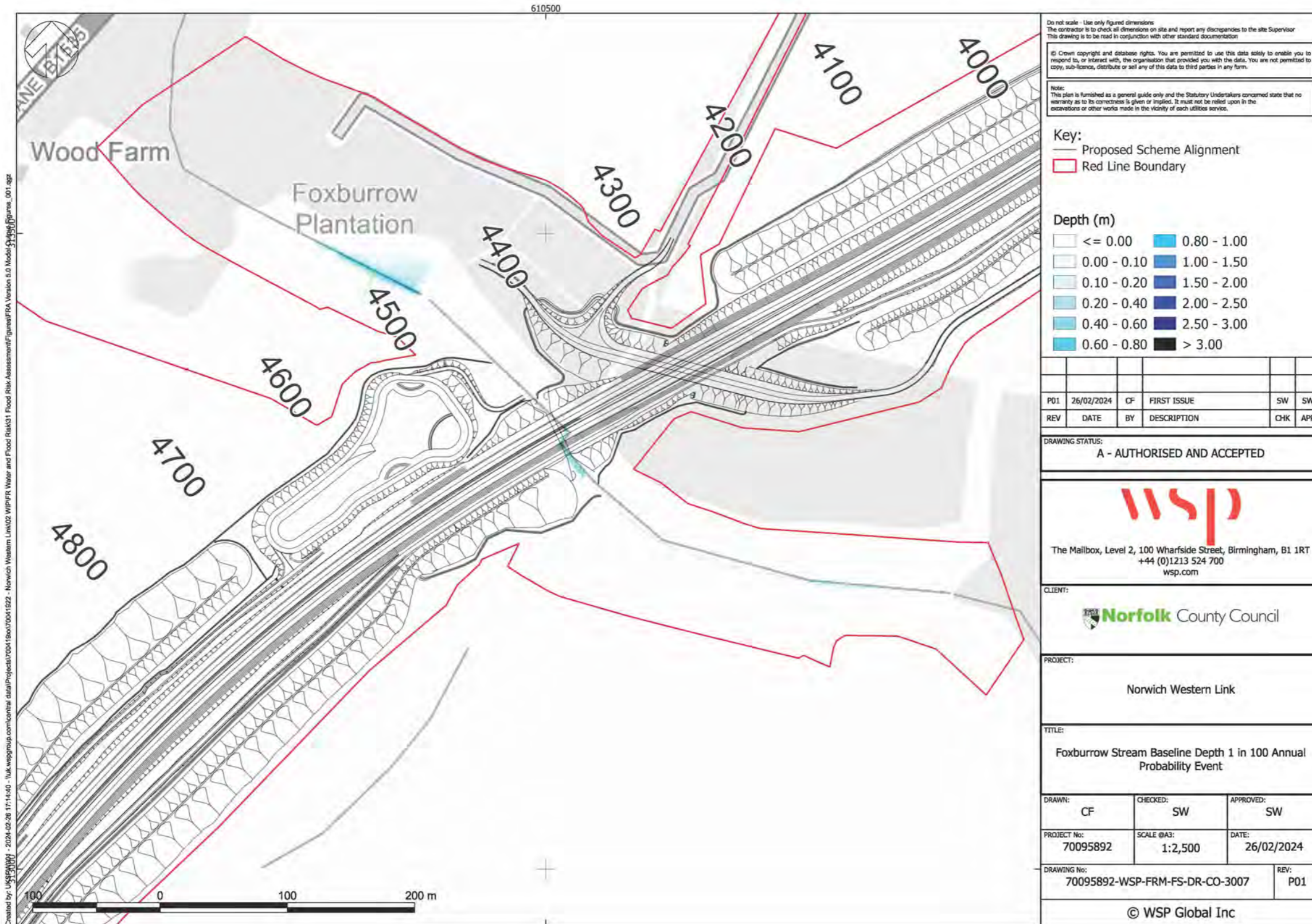
DRAWN: CF CHECKED: SW APPROVED: SW

PROJECT No: 70095892 SCALE @A3: 1:2,500 DATE: 26/02/2024

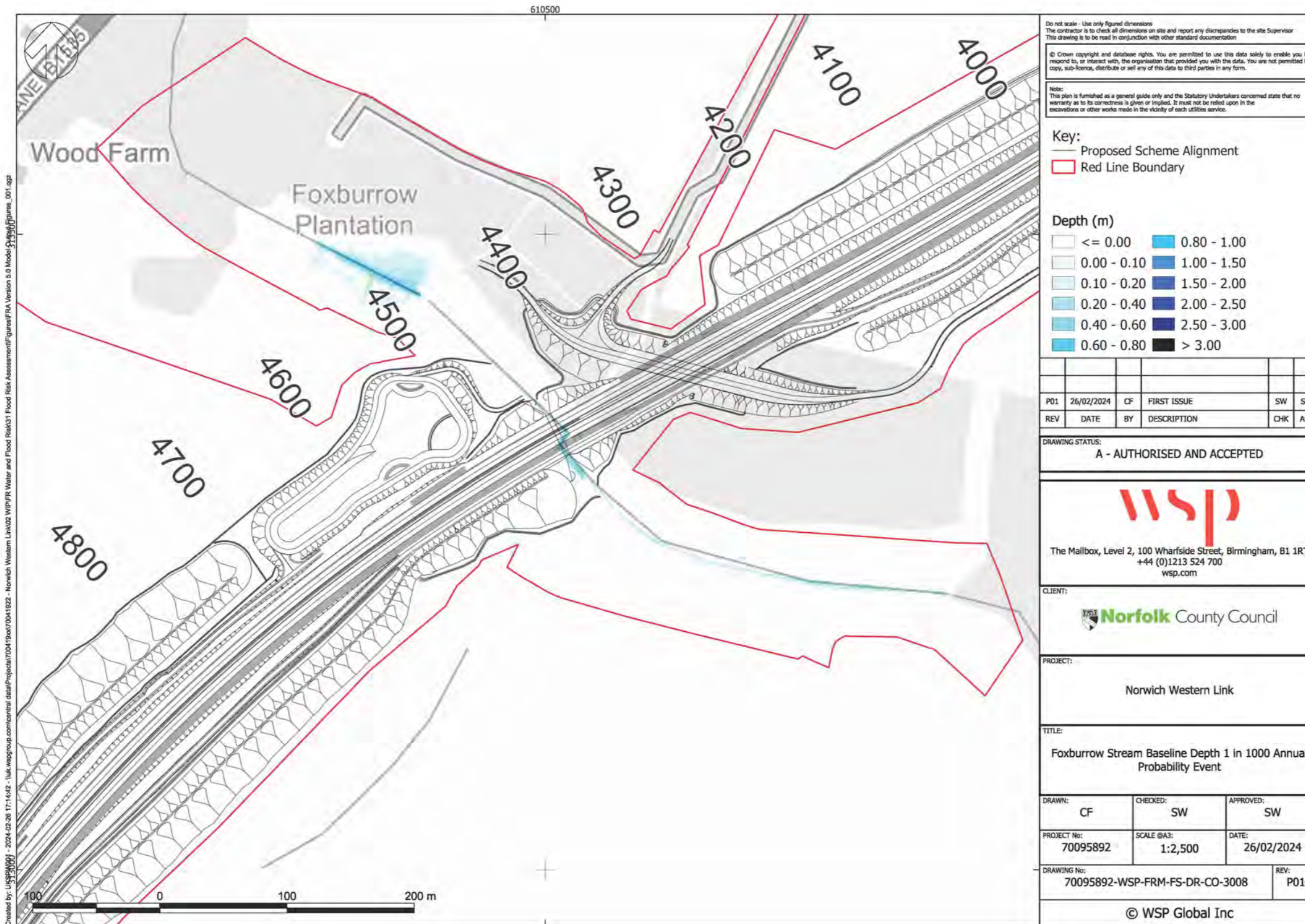
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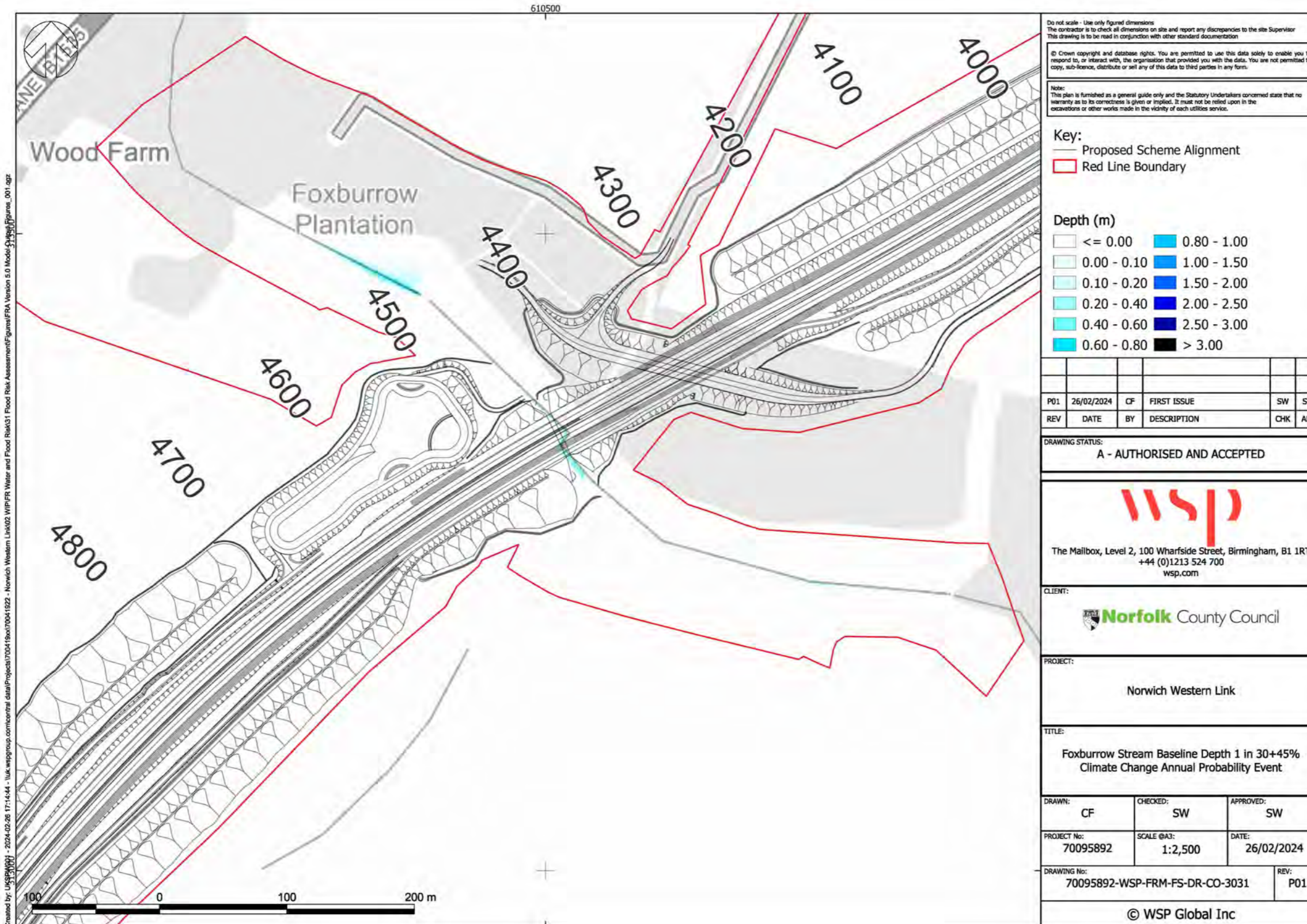
Foxburrow Stream baseline depth 1 in 100 annual probability event



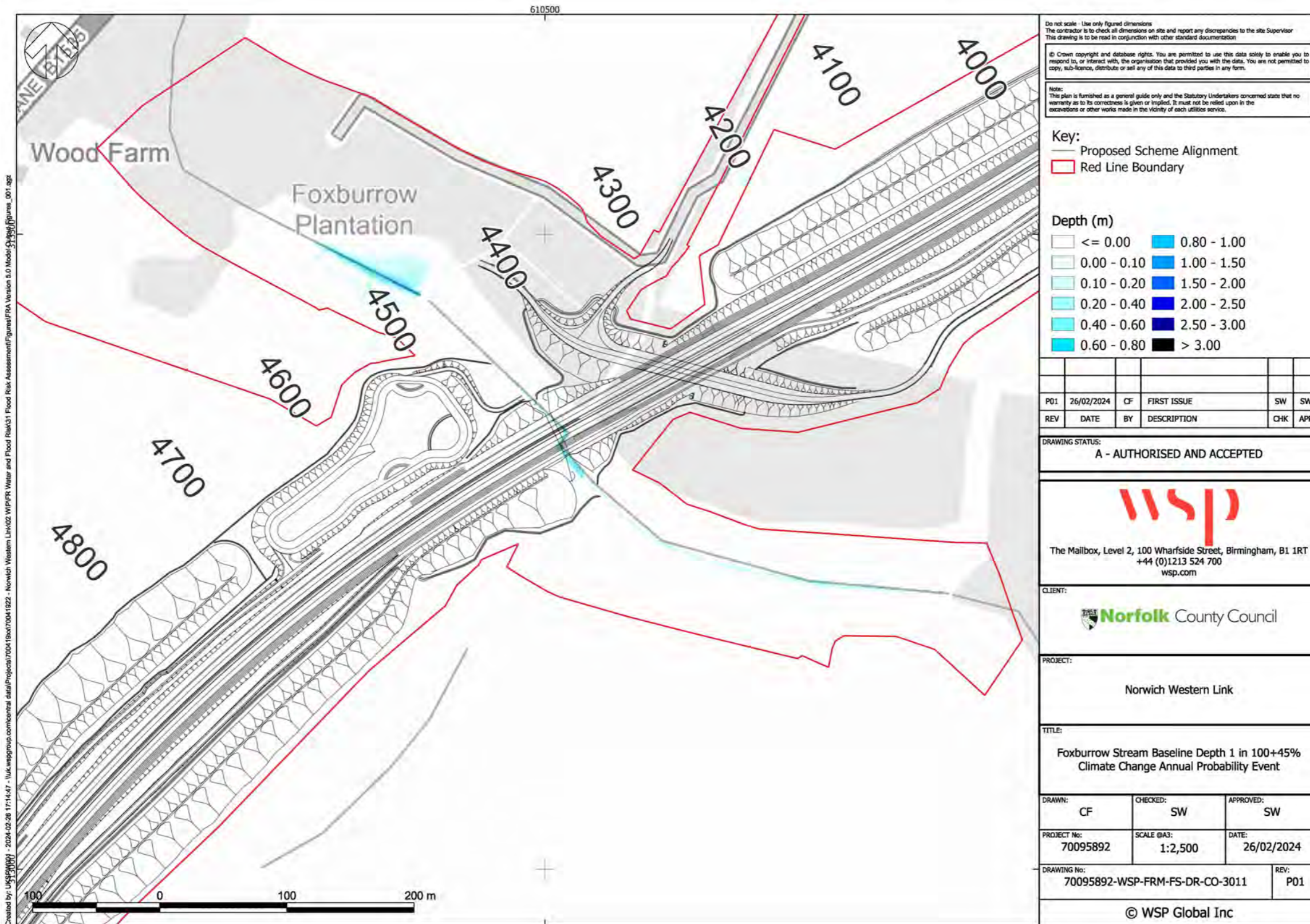
Foxburrow Stream baseline depth 1 in 1000 annual probability event



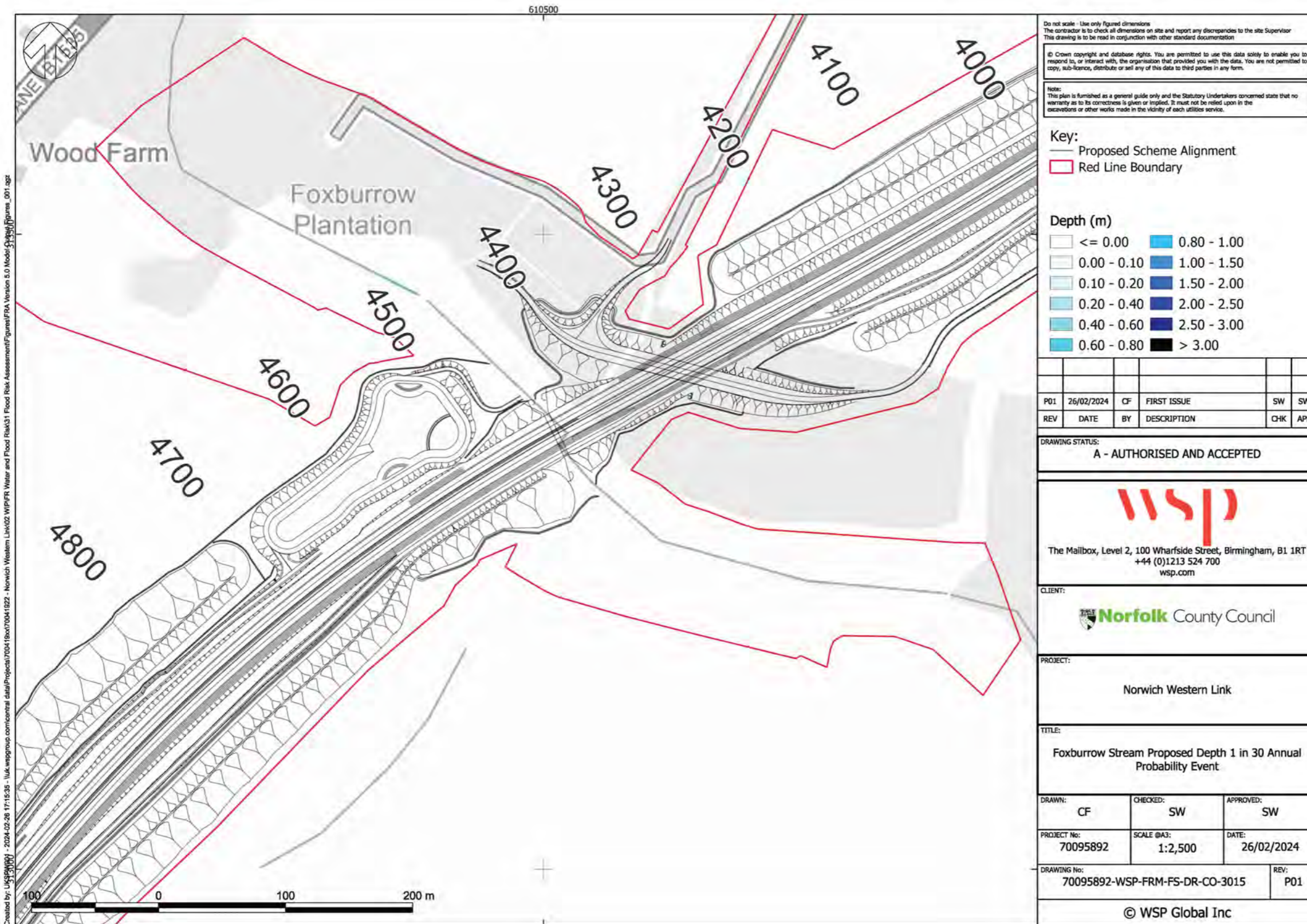
Foxburrow Stream baseline depth 1 in 30+45% annual probability event



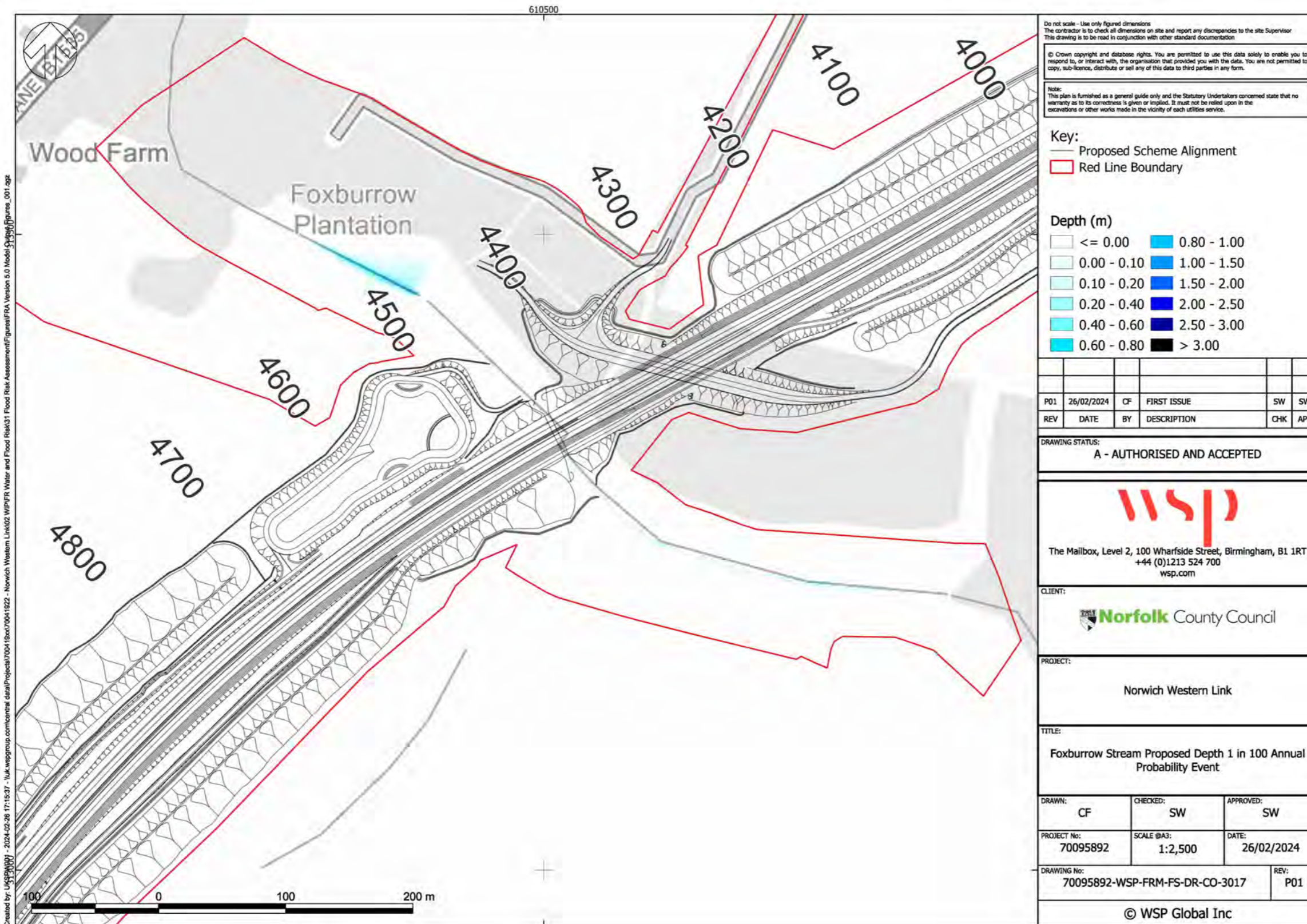
Foxburrow Stream baseline depth 1 in 100+45% annual probability event



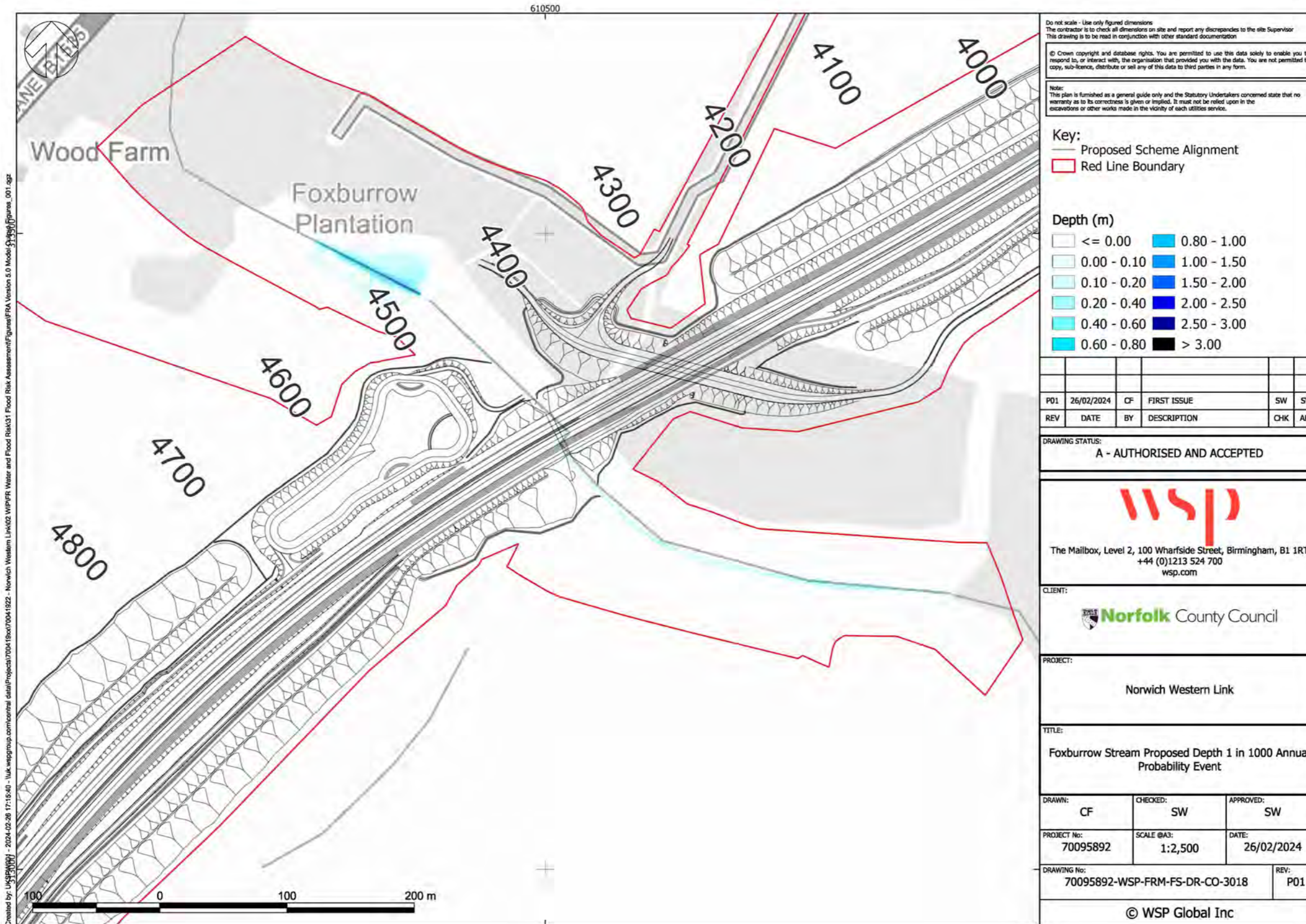
Foxburrow Stream proposed depth 1 in 30 annual probability event



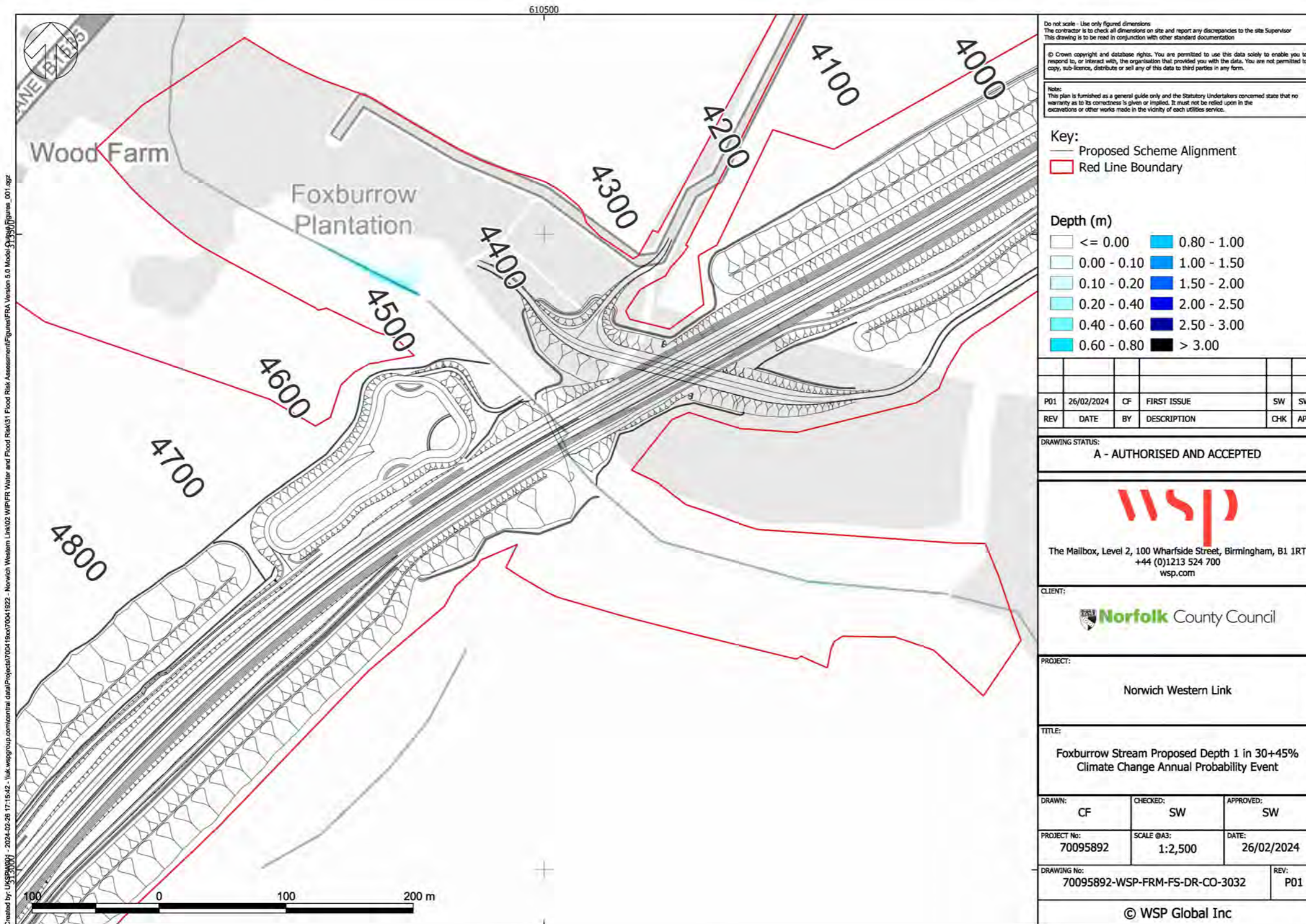
Foxburrow Stream proposed depth 1 in 100 annual probability event



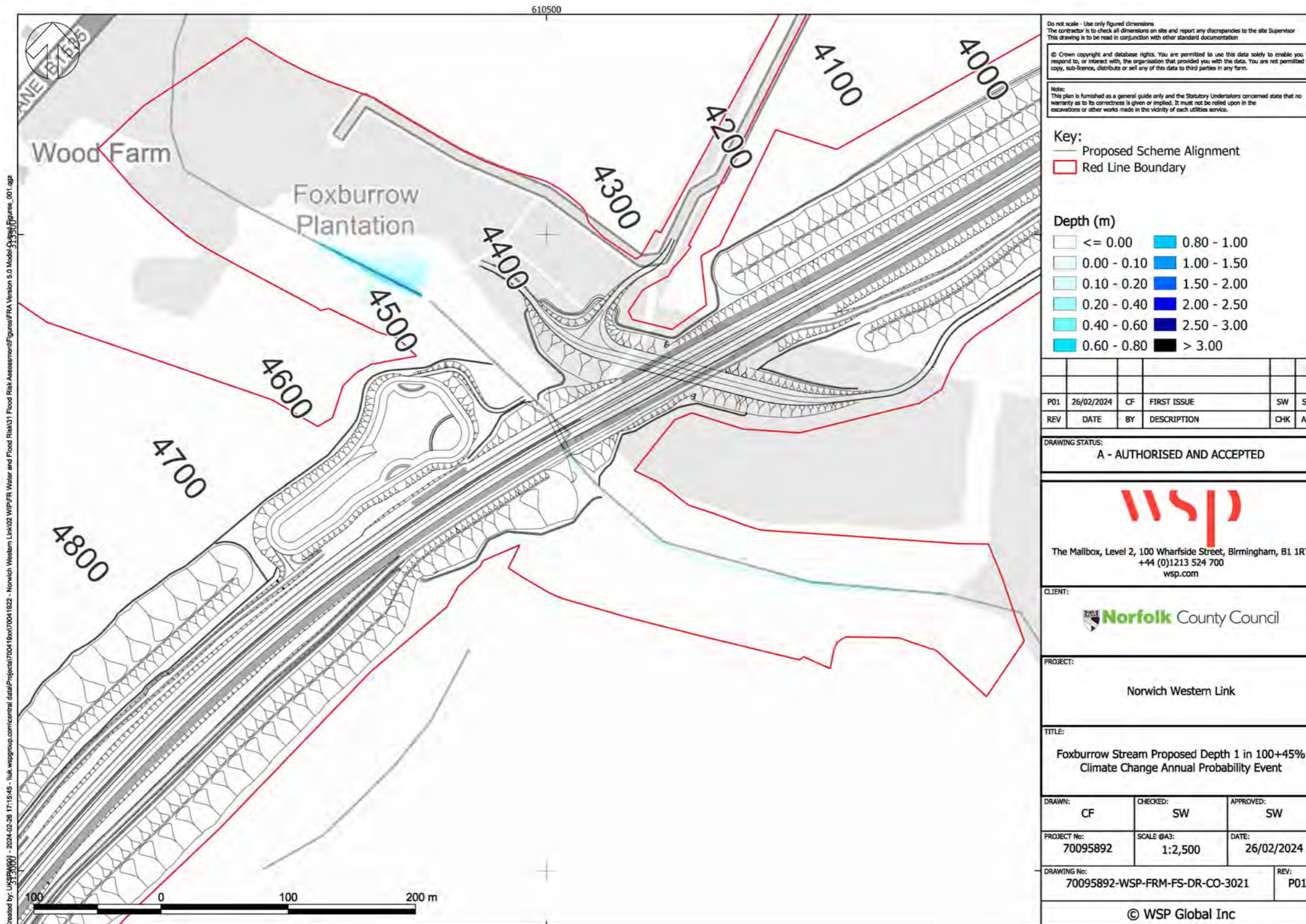
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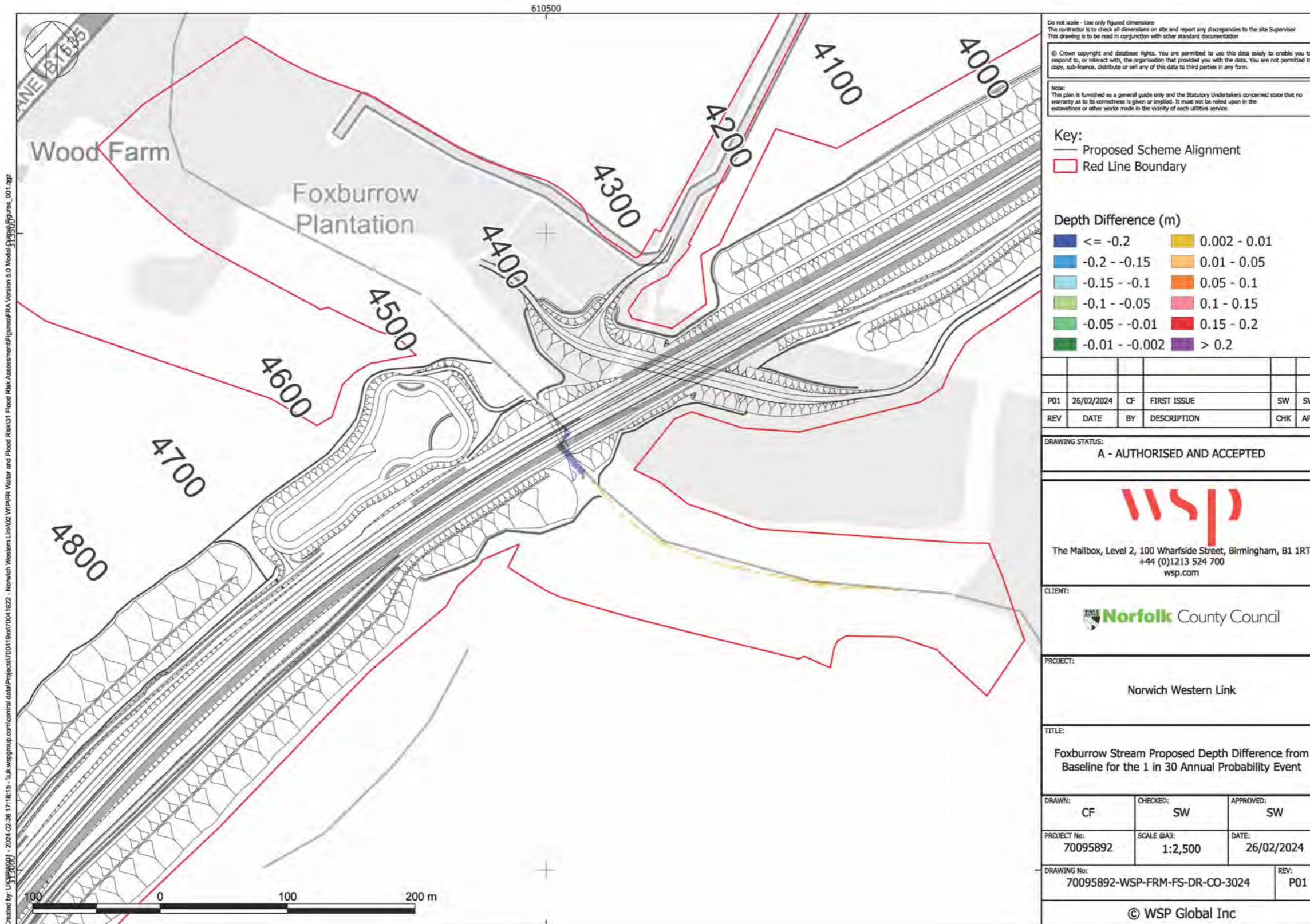
Foxburrow Stream proposed depth 1 in 30+45% annual probability event



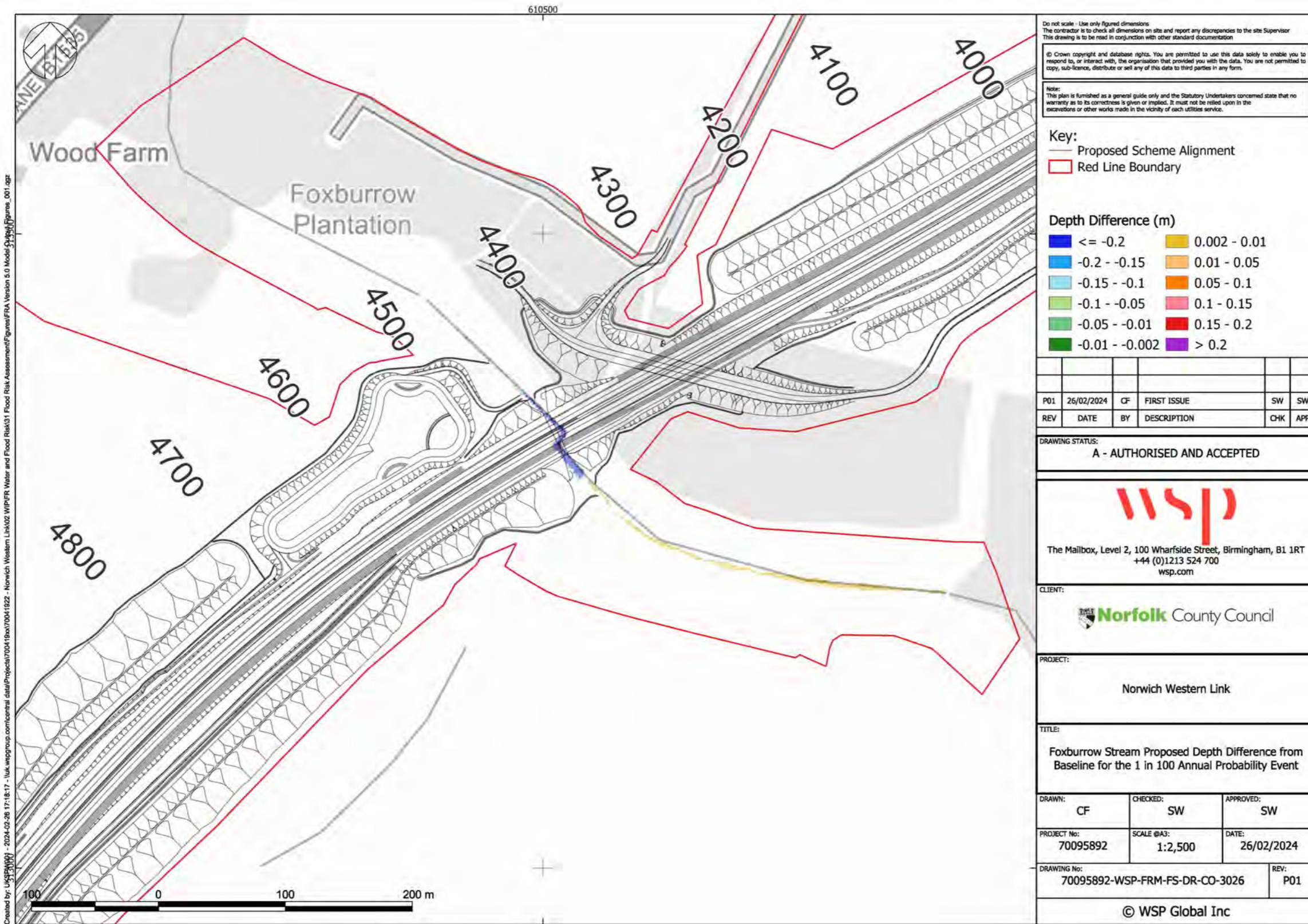
Foxburrow Stream proposed depth 1 in 100+45% annual probability event



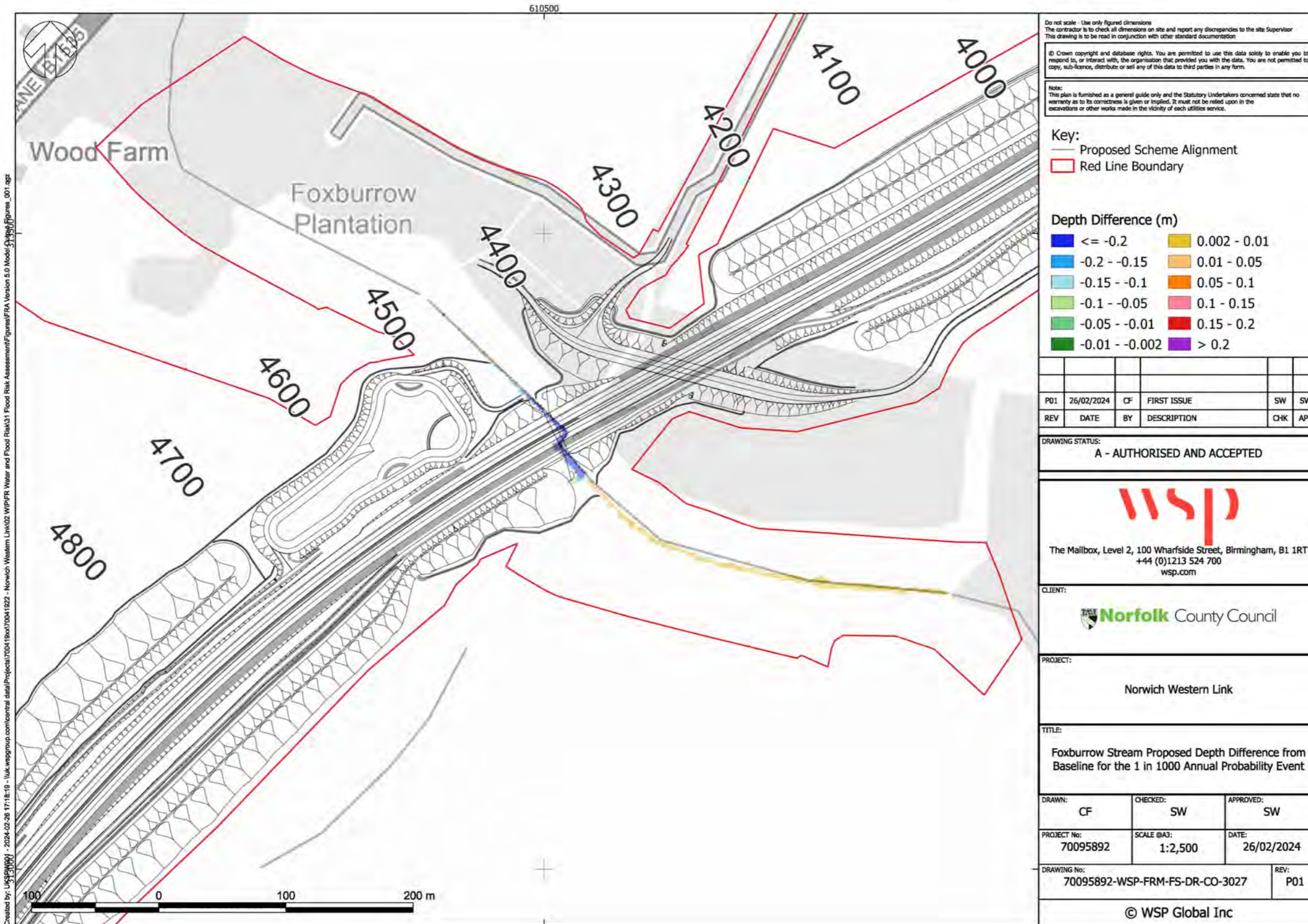
Foxburrow Stream proposed depth difference from baseline in the 1 in 30 annual probability event



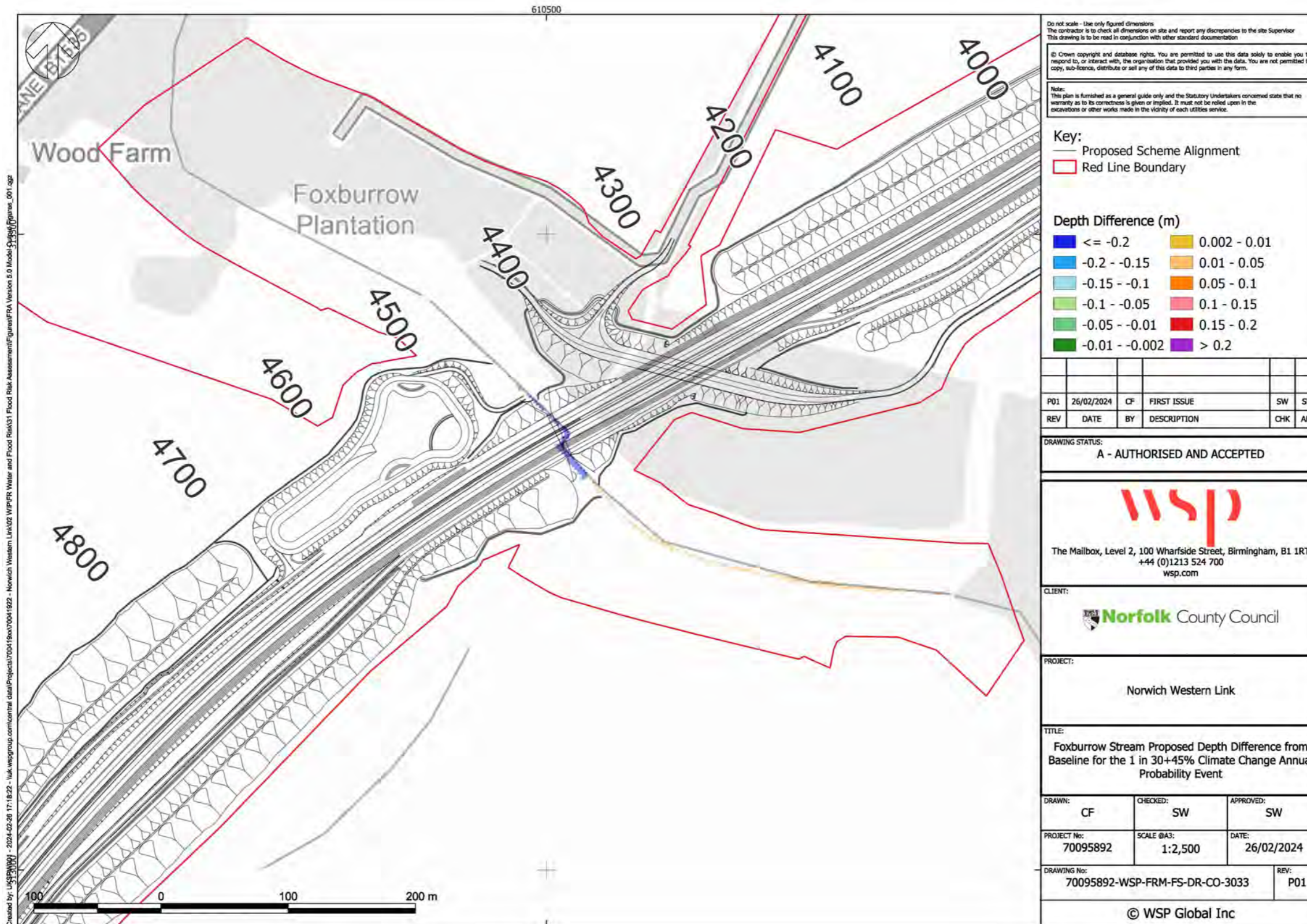
Foxburrow Stream proposed depth difference from baseline in the 1 in 100 annual probability event



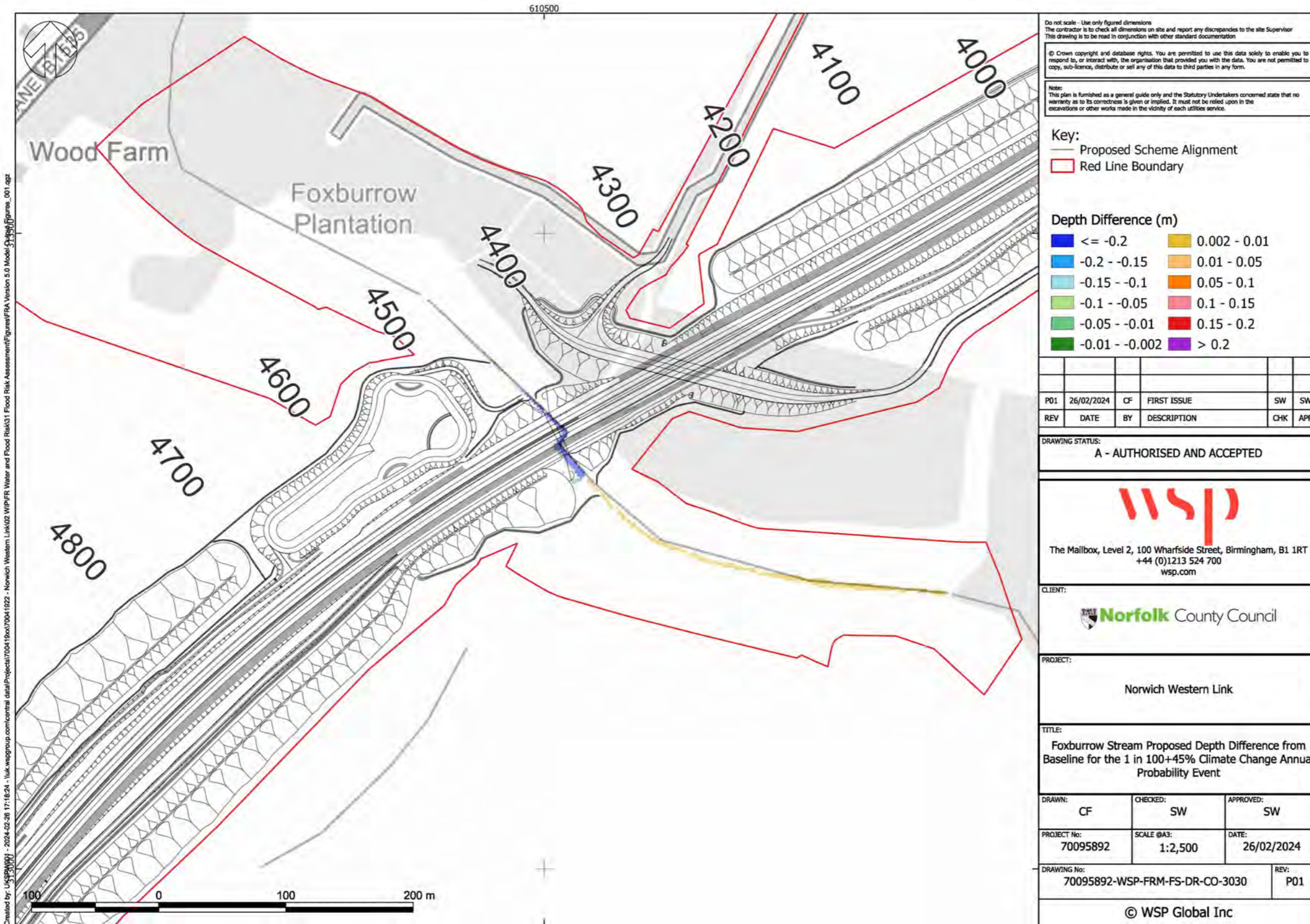
Foxburrow Stream proposed depth difference from baseline in the 1 in 1000 annual probability event



Foxburrow Stream proposed depth difference from baseline in the 1 in 30+45% annual probability event



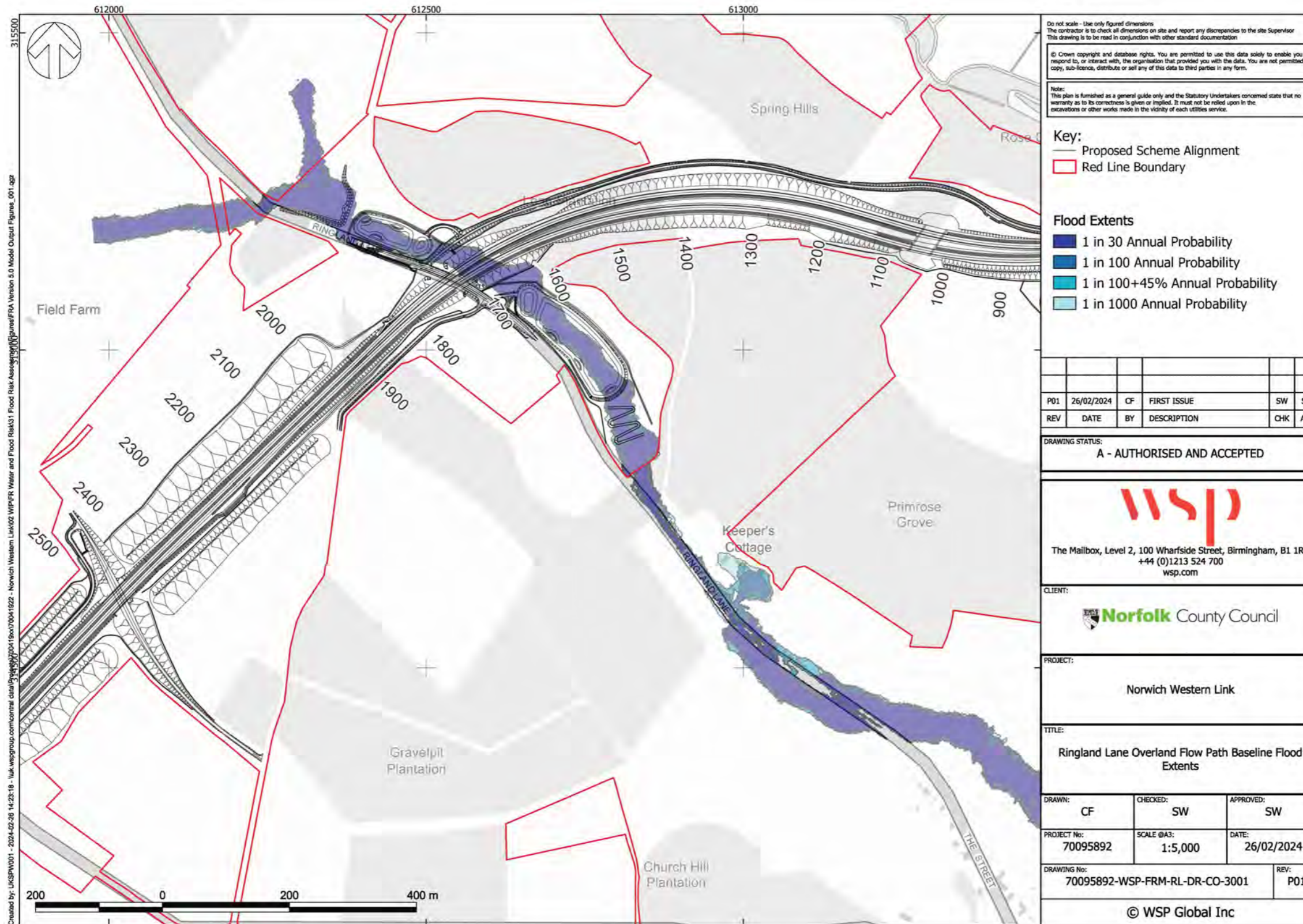
Foxburrow Stream proposed depth difference from baseline in the 1 in 100+45% annual probability event



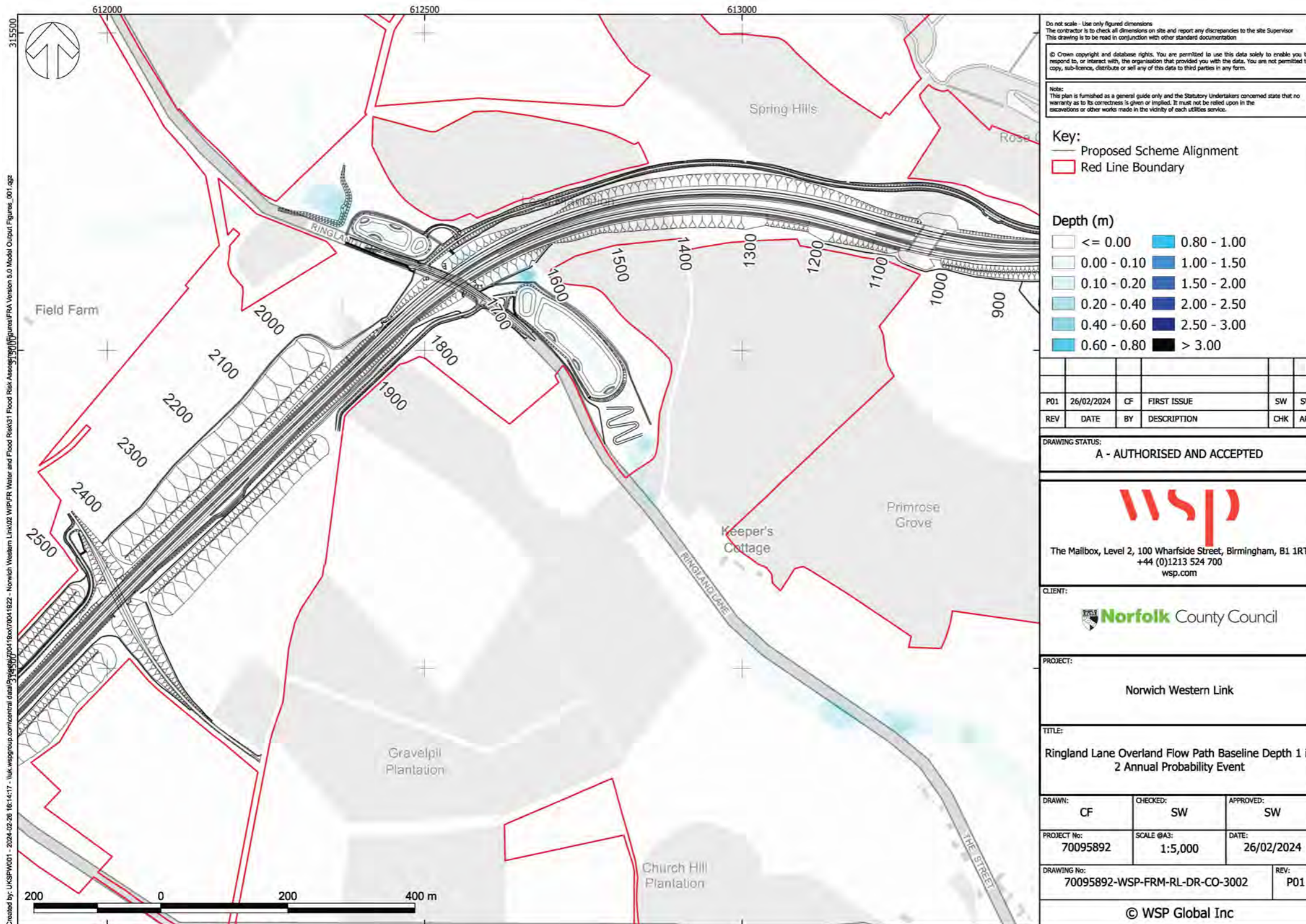
Ringland Lane

The following figures present the flood risk associated with the Ringland Lane overland flow path. They present the results of the detailed hydraulic modelling undertaken as part of the Flood Risk Assessment. The modelling results presented include depths, velocity and hazard mapping in the existing case and with the proposed scheme in place. Maps are presented for the 1 in 2, 5, 30, 50, 100, 1000, 30+45% and 100+45% annual probability events. The differences in depth and velocity between the proposed and baseline are also presented.

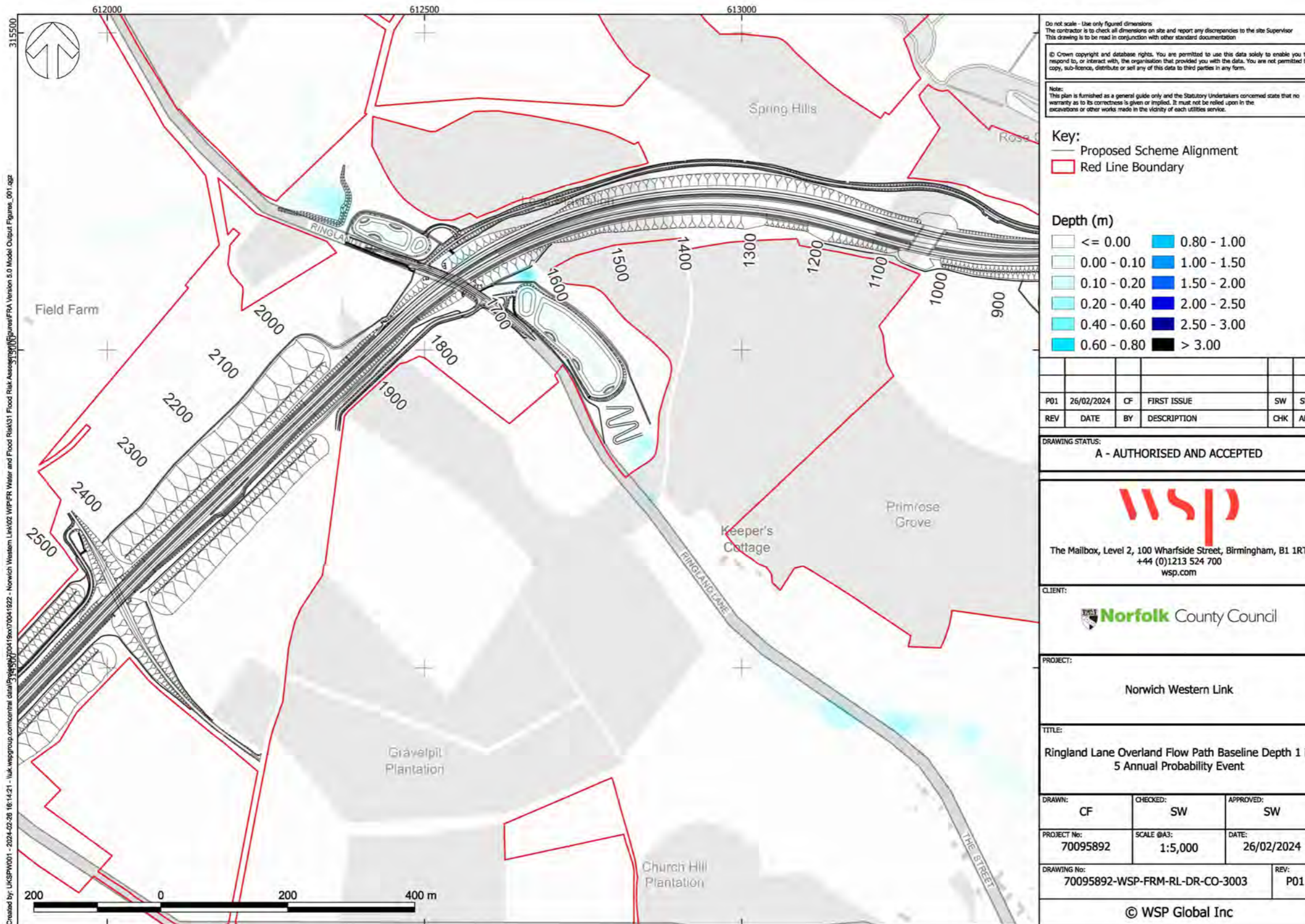
Ringland Lane overland flow path baseline flood extents



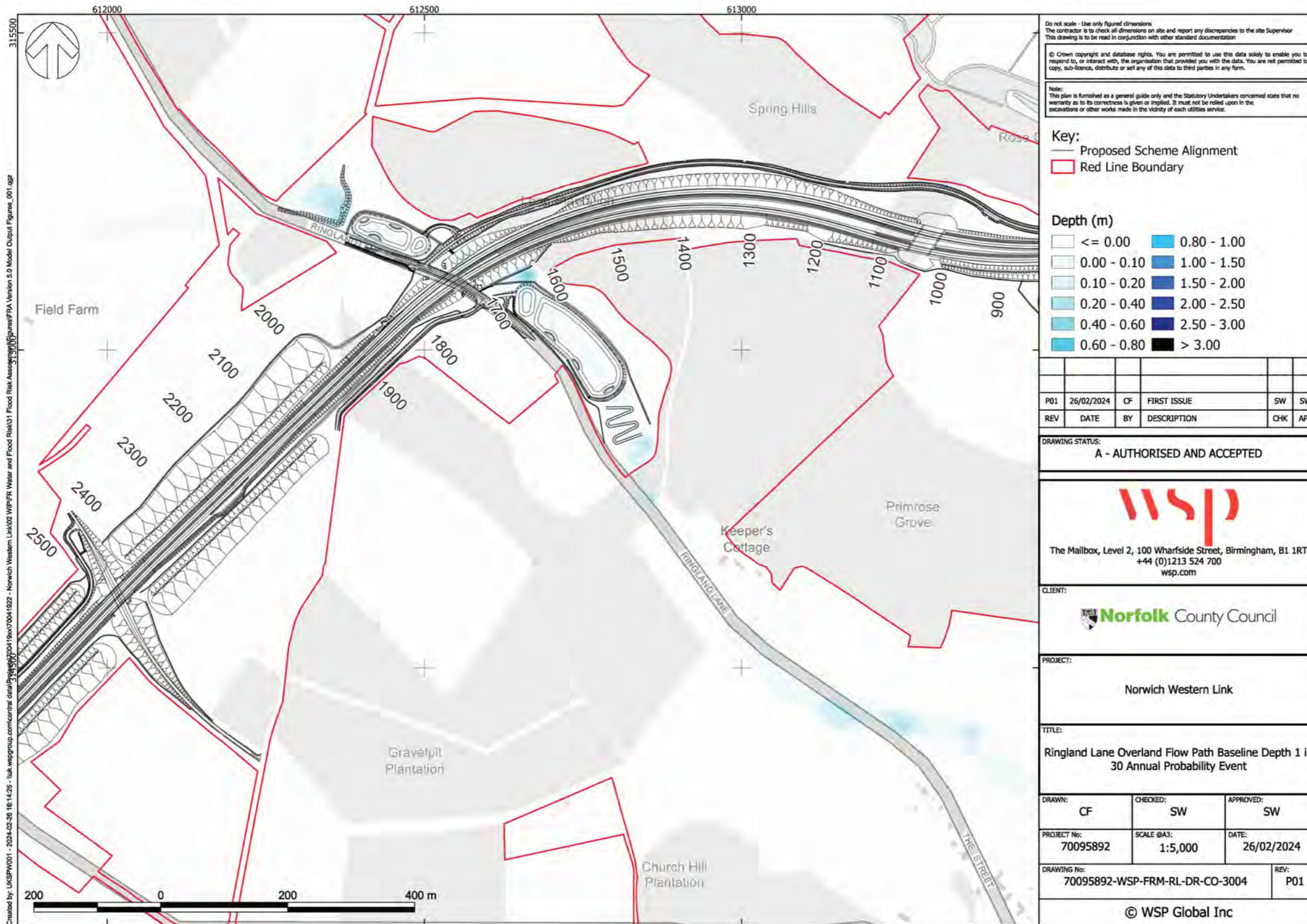
Ringland Lane overland flow path baseline depth 1 in 2 annual probability event



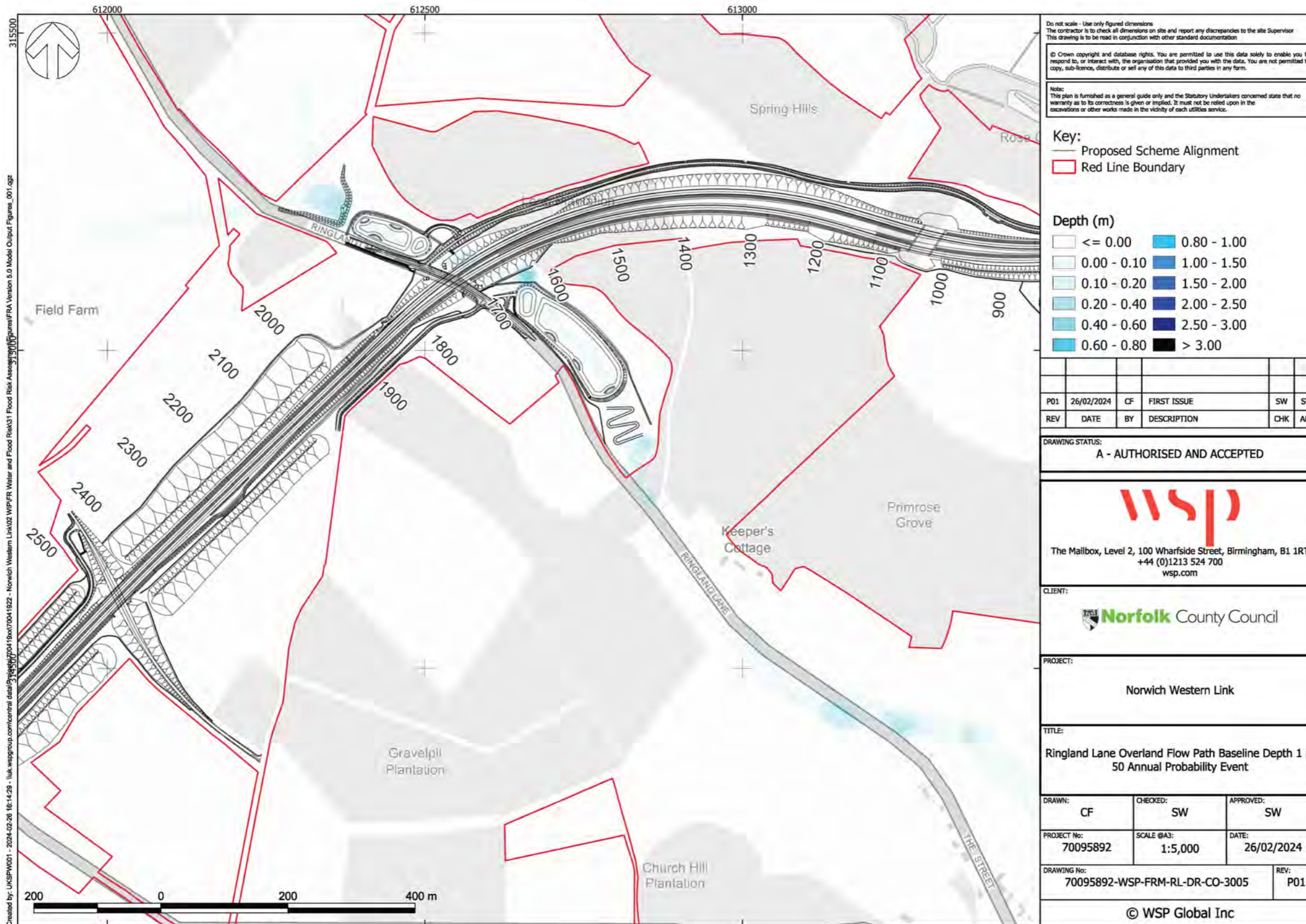
Ringland Lane overland flow path baseline depth 1 in 5 annual probability event



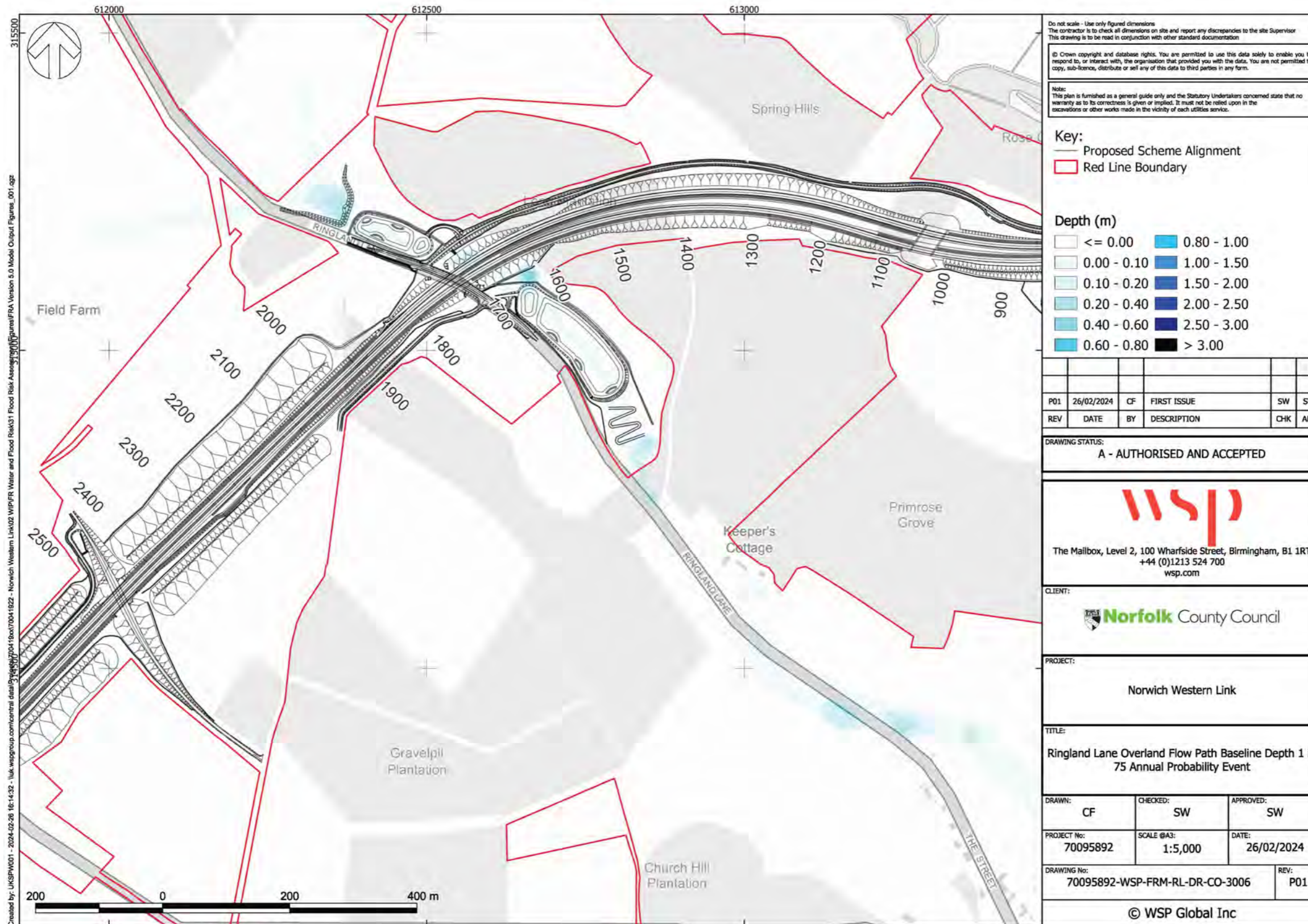
Ringland Lane overland flow path baseline depth 1 in 30 annual probability event



Ringland Lane overland flow path baseline depth 1 in 50 annual probability event



Ringland Lane overland flow path baseline depth 1 in 75 annual probability event



Ringland Lane overland flow path baseline depth 1 in 100 annual probability event

