

M5 Junction 10 Improvements Scheme

Environmental Statement Appendix 8.4 Road Drainage and Water Environment chapter figures TR010063 - APP 6.15

Regulation 5 (2) (a)

Planning Act 2008

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

Volume 6
December 2023

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Infrastructure Planning Planning Act 2008

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

M5 Junction 10 Improvements Scheme Development Consent Order 202[x]

6.15 Environmental Statement

Appendix 8.4 Road Drainage and

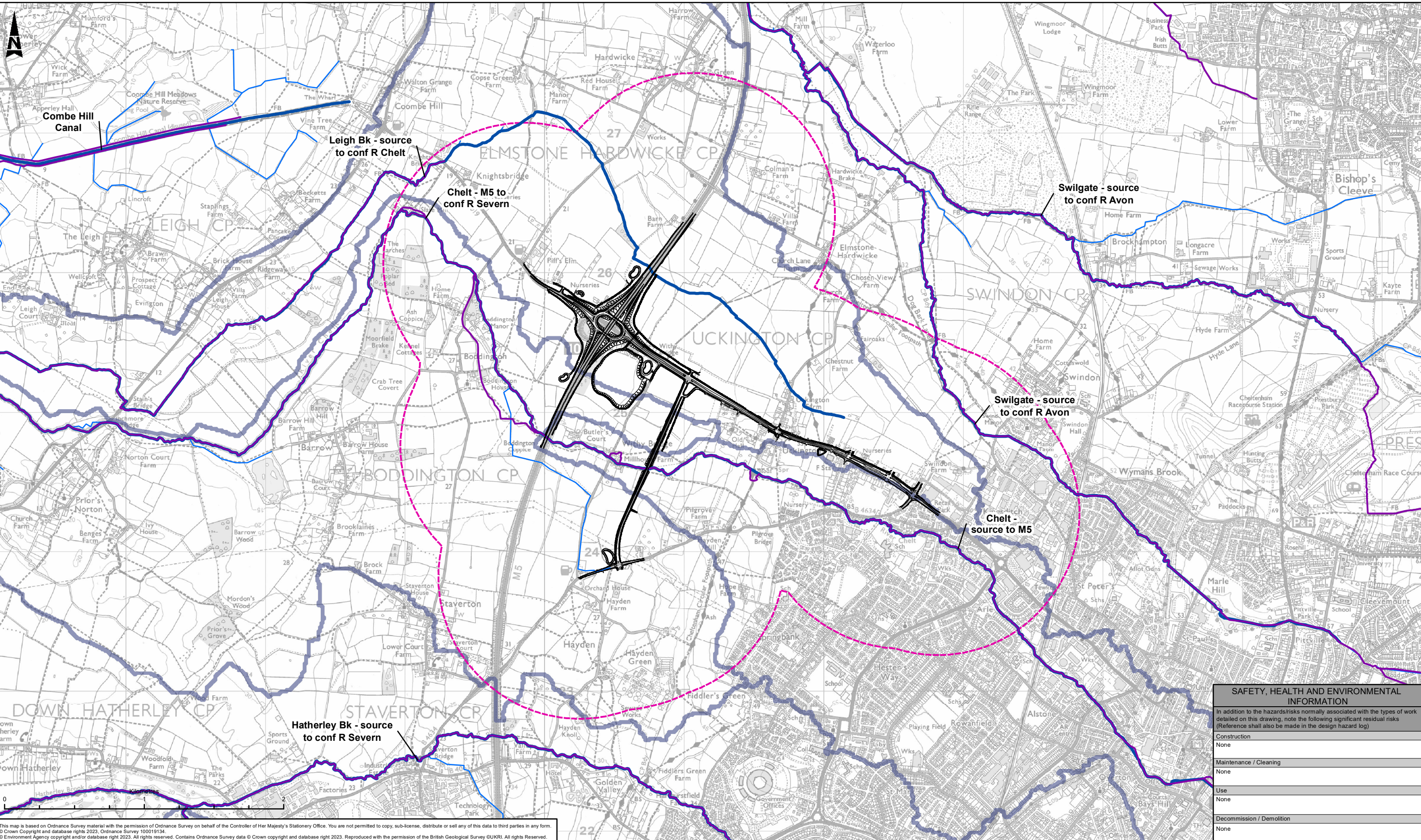
Water Environment chapter figures

Regulation Number:	Regulation 5(2)(a)
Planning Inspectorate Scheme Reference	TR010063
Application Document Reference	TR010063/APP/6.15
Author:	M5 Junction 10 Improvements Scheme Project Team

Version	Date	Status of Version
Rev 0	December 2023	DCO Application

1. Schedule of figures included in this application document

Figure reference	Document title	Sheet	Document number	Revision
8-1	Scheme location in relation to WFD surface water bodies	1 of 1	GCCM5J10-ATK-EWE-ZZ-GS-GI-000005	0
8-2	Surface water courses within the study area	1 of 1	GCCM5J10-ATK-EWE-ZZ-GS-GI-000006	0
8-3	Geology and WFD groundwater bodies	1 of 1	GCCM5J10-ATK-EWE-ZZ-GS-GI-000015	0
8-4	Environment Agency Flood map for Planning	1 of 1	GCCM5J10-ATK-EWE-ZZ-GS-GI-000020	0
8-5	1% AEP baseline flood extent map – future with 53% climate change	1 of 1	GCCM5J10-ATK-EWE-ZZ-GS-GI-000009	0
8-6	Environment Agency Risk of Flooding from Surface Water	1 of 1	GCCM5J10-ATK-EWE-ZZ-GS-GI-000008	0
8-7	1% AEP level difference map – present day	1 of 1	GCCM5J10-ATK-EWE-ZZ-GS-GI-000010	0
8-8	1% AEP level difference map – future with 53% climate change	1 of 1	GCCM5J10-ATK-EWE-ZZ-GS-GI-000011	0

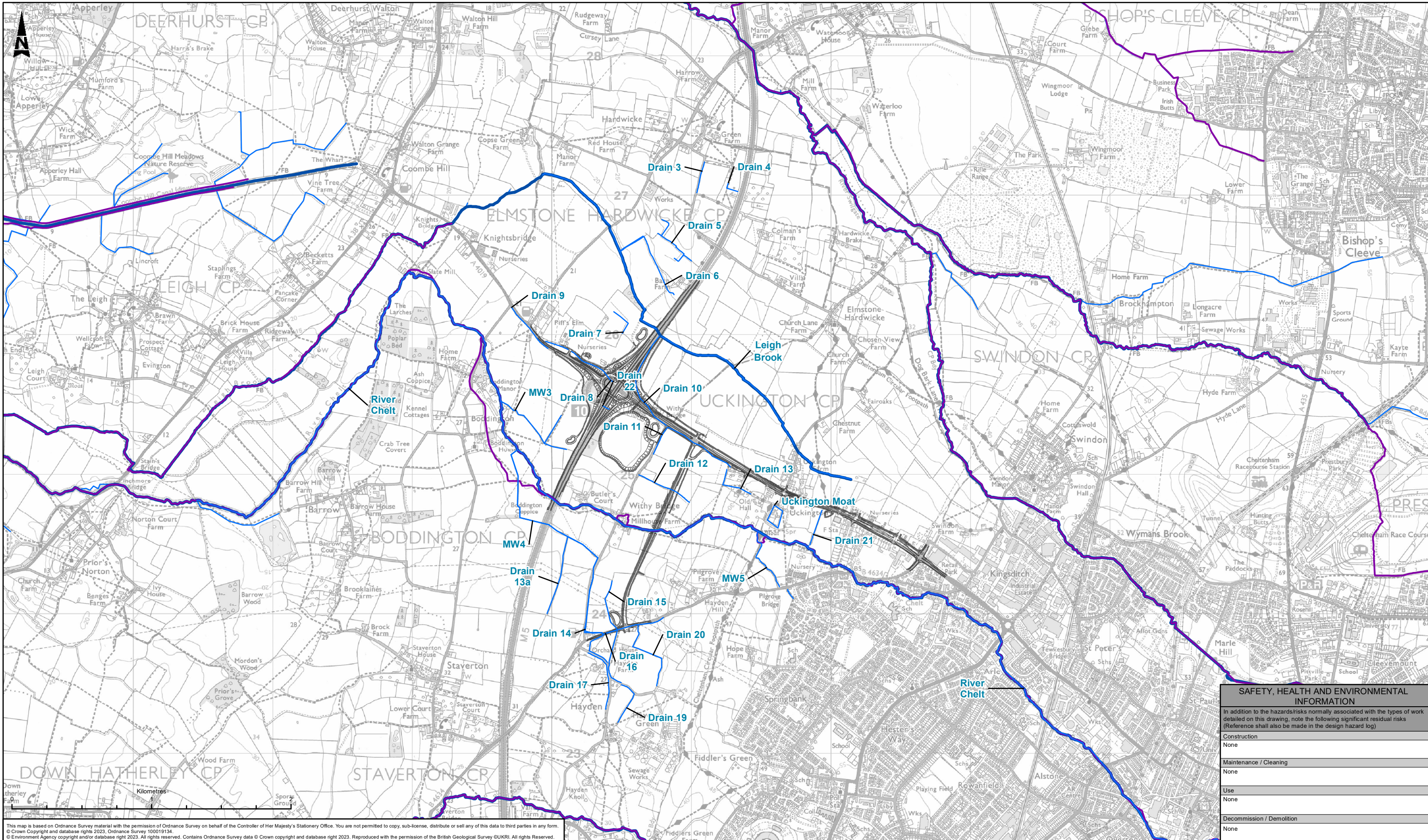


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- LEGEND**
- SCHEME ALIGNMENT
 - 1KM STUDY AREA
 - SURFACE WATER BODY CATCHMENTS
 - STATUTORY MAIN RIVERS
 - WFD WATERCOURSES
 - ORDINARY WATERCOURSES

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION	
In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made in the design hazard log)	
Construction	None
Maintenance / Cleaning	None
Use	None
Decommission / Demolition	None

PUBLISHED		A1		Project Title M5 Junction 10 Improvements Scheme	
ATKINS Member of the SNC-Lavalin Group		5th Floor, Block 5 Shire Hall Bearland Gloucester GL1 2TH Tel: 08000 514 514 www.atkinsglobal.com		Drawing Title FIGURE 8-1 SCHEME LOCATION IN RELATION TO WFD SURFACE WATER BODIES	
Client Gloucestershire COUNTY COUNCIL		Project GCCM5J10 - ATK - EWE		Original ZZ - GS - GI - 000005	
Status PUBLISHED		Location A3		Scale 1:25,000	
Description Status: A1, Revision: P02, Drawn: SD, Checked: MT, Reviewed: CC, Authorised: LJ, Issue Date: 01/05/23		Project Ref: 5214106		Sheet: 1 of 1	
		Volume GCCM5J10 - ATK - EWE		Rev: P02	



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LEGEND

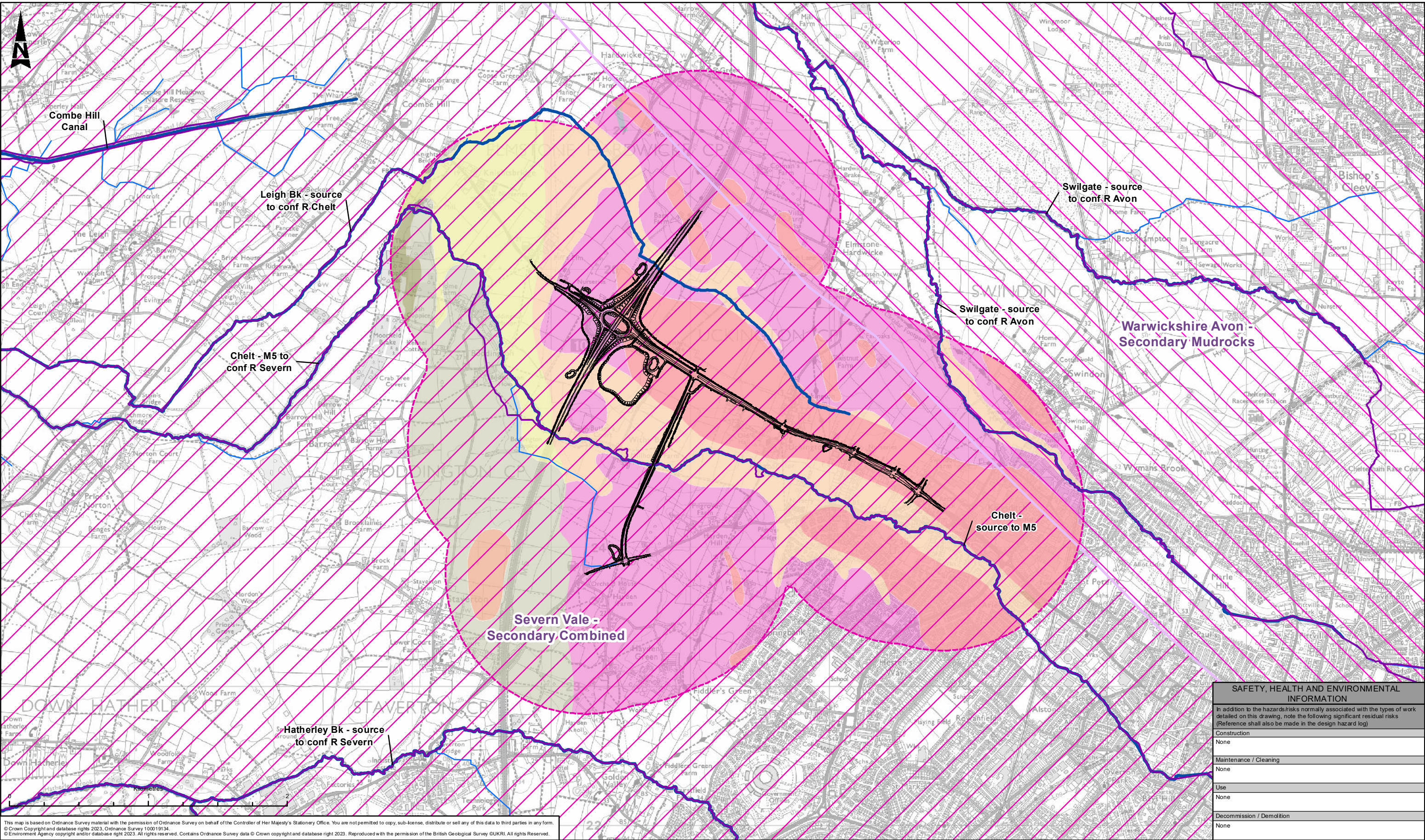
- SCHEME ALIGNMENT
- STATUTORY MAIN RIVERS
- WFD WATERCOURSES
- ORDINARY WATERCOURSES

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Use	None
Decommission / Demolition	None

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
	A1	P02	SD	MT	CC	LJ	01/05/23

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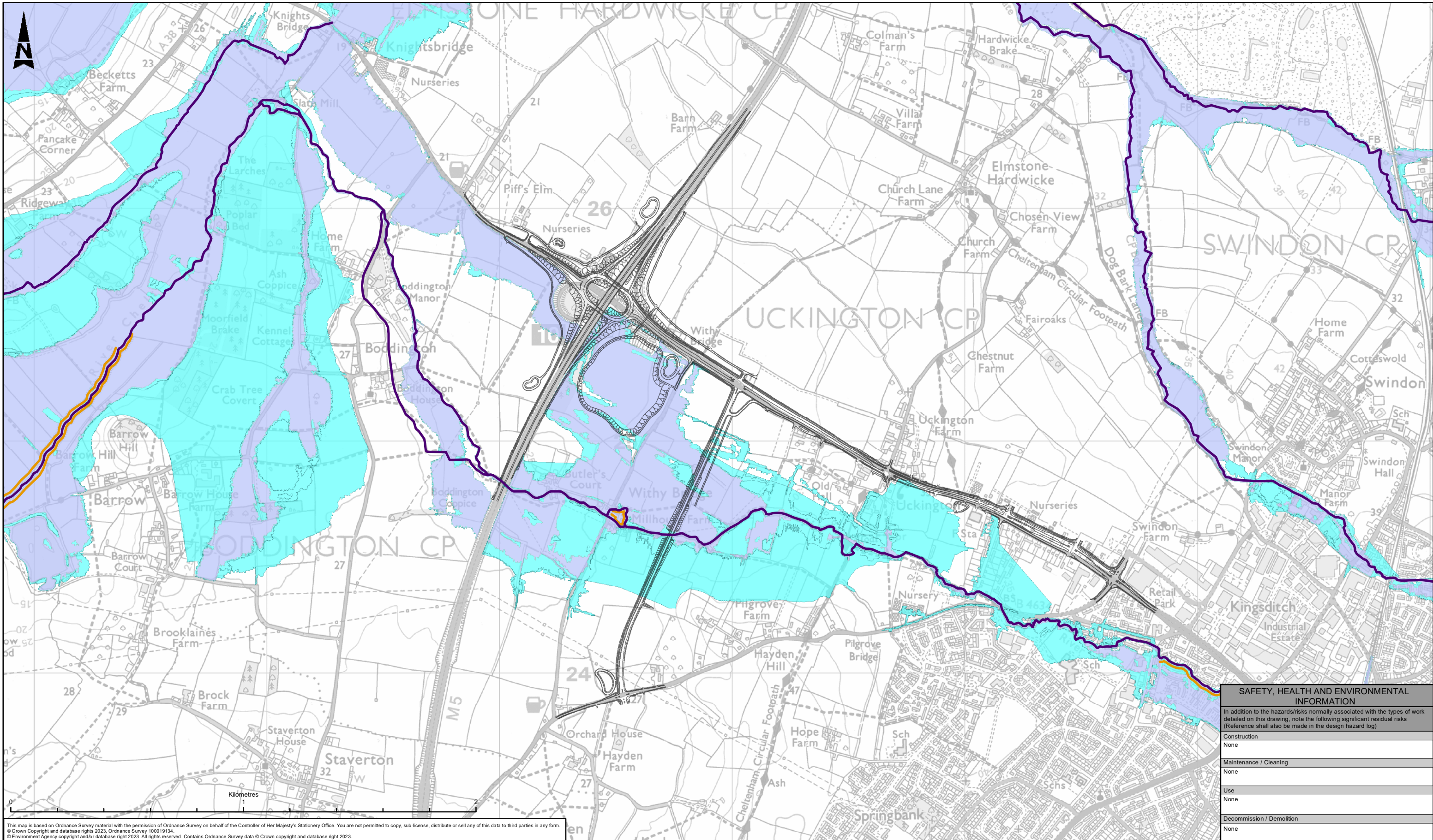
<p>PUBLISHED</p> <p>A1</p>	<p>Project Title</p> <p>M5 Junction 10 Improvements Scheme</p>
<p>Drawing Title</p> <p>FIGURE 8-2 SURFACE WATER COURSES WITHIN THE STUDY AREA</p>	<p>Drawing Number</p> <p>Project: GCCM5J10 - ATK - EWE Originator: ZZ - GS - GI - 000006 Volume: 1 of 1</p>
<p>Client</p> <p>gloucestershire</p> <p>COUNTY COUNCIL</p>	<p>Original Size: A3</p> <p>Scale: 1:25,000</p> <p>Project Ref: 5214106</p> <p>Sheet: 1 of 1</p> <p>Rev: P02</p>



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SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION	
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Construction	None
Maintenance / Cleaning	None
Use	None
Decommission / Demolition	None

LEGEND — SCHEME ALIGNMENT 1KM STUDY AREA GROUNDWATER BODIES SEVERN VALE - SECONDARY COMBINED WARWICKSHIRE AVON - SECONDARY MUDROCKS STATUTORY MAIN RIVERS WFD WATERCOURSES ORDINARY WATERCOURSES		SUPERFICIAL GEOLOGY ALLUVIUM - CLAY, SILT, SAND AND GRAVEL CHELTENHAM SAND AND GRAVEL - SAND AND GRAVEL BEDROCK GEOLOGY CHARMOUTH MUDSTONE FORMATION - LIMESTONE CHARMOUTH MUDSTONE FORMATION - MUDSTONE RUGBY LIMESTONE MEMBER - MUDSTONE AND LIMESTONE, INTERBEDDED SALT FORD SHALE MEMBER - MUDSTONE		<table border="1"> <thead> <tr> <th>Description</th> <th>Status</th> <th>Revision</th> <th>Drawn</th> <th>Checked</th> <th>Reviewed</th> <th>Authorised</th> <th>Issue Date</th> </tr> </thead> <tbody> <tr> <td>PUBLISHED</td> <td>A1</td> <td>R02</td> <td>SD</td> <td>MT</td> <td>CC</td> <td>LJ</td> <td>14/09/23</td> </tr> </tbody> </table>		Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date	PUBLISHED	A1	R02	SD	MT	CC	LJ	14/09/23	<table border="1"> <tr> <td colspan="2">PUBLISHED</td> <td>A1</td> </tr> <tr> <td colspan="3"> Member of the SNC-Lavalin Group 5th Floor, Block 5 Shire Hall Bearland Gloucester GL1 2TH Tel: 08000 514 514 Copyright © Atkins Limited (2023) www.atkinsglobal.com </td> </tr> <tr> <td colspan="3"> </td> </tr> </table>		PUBLISHED		A1	 Member of the SNC-Lavalin Group 5th Floor, Block 5 Shire Hall Bearland Gloucester GL1 2TH Tel: 08000 514 514 Copyright © Atkins Limited (2023) www.atkinsglobal.com						<table border="1"> <tr> <td colspan="3">Project Title</td> </tr> <tr> <td colspan="3">M5 Junction 10 Improvements Scheme</td> </tr> <tr> <td colspan="3">Drawing Title</td> </tr> <tr> <td colspan="3">FIGURE 8-3 GEOLOGY AND WFD GROUNDWATER BODIES</td> </tr> <tr> <td colspan="3">Drawing Number</td> </tr> <tr> <td>Project</td> <td>Originator</td> <td>Volume</td> </tr> <tr> <td>GCCM5J10 - ATK - EWE</td> <td>ZZ - GS - GI - 000015</td> <td></td> </tr> <tr> <td>Location</td> <td>Type</td> <td>Scale</td> </tr> <tr> <td></td> <td></td> <td>1:25,000</td> </tr> <tr> <td>Original Size</td> <td>Ref.</td> <td>Sheet</td> </tr> <tr> <td>A3</td> <td>5214106</td> <td>1 of 1</td> </tr> <tr> <td>Rev.</td> <td colspan="2">P02</td> </tr> </table>		Project Title			M5 Junction 10 Improvements Scheme			Drawing Title			FIGURE 8-3 GEOLOGY AND WFD GROUNDWATER BODIES			Drawing Number			Project	Originator	Volume	GCCM5J10 - ATK - EWE	ZZ - GS - GI - 000015		Location	Type	Scale			1:25,000	Original Size	Ref.	Sheet	A3	5214106	1 of 1	Rev.	P02	
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LEGEND	
	MAIN RIVER
	FLOOD DEFENCE
	SCHEME ALIGNMENT
	FLOOD ZONE 3
	FLOOD ZONE 2

Note: All Flood Zone, Main River and Flood Defence data has been obtained from the Environment Agency

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made in the design hazard log)

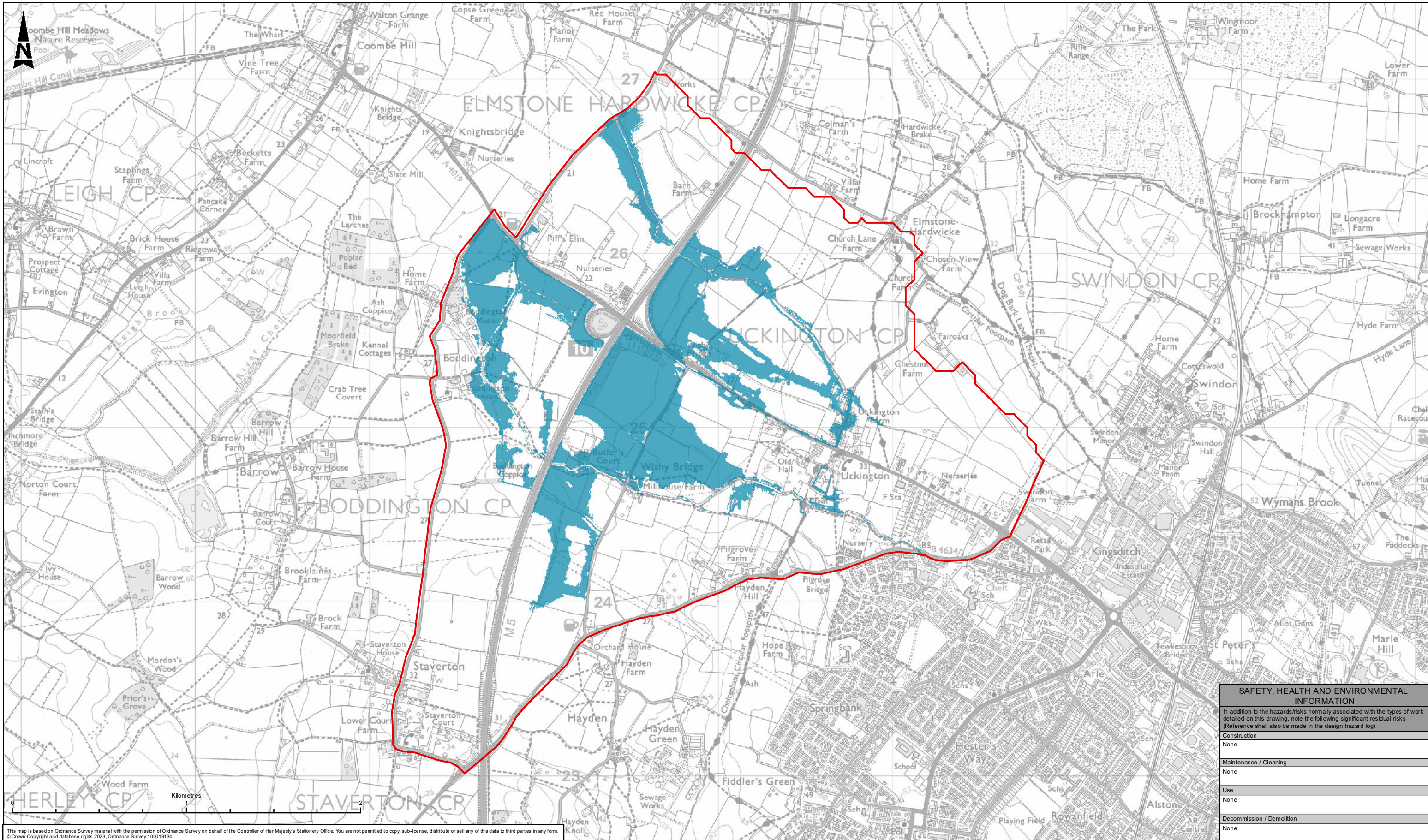
Construction	None
Maintenance / Cleaning	None
Use	None
Decommission / Demolition	None

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date

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Project Title		M5 Junction 10 Improvements Scheme	
Drawing Title		FIGURE 8-4 THE ENVIRONMENT AGENCY'S FLOOD MAP FOR PLANNING	
Drawing Number		GCCM5J10-ATK-EWE-ZZ-GS-GI-000020	
Location	Type	Role	Number
Original Size: A3	Scale: 1:15,000	Project Ref: 5214106	Sheet: 1 of 1
Status: A1		Revision: P02	Drawn: JM
Checked: NJ		Reviewed: CC	Authorised: LJ
Issue Date: 24/08/23			



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Construction	None
Maintenance / Cleaning	None
Use	None
Decommission / Demolition	None

LEGEND

- MODEL DOMAIN
- BASELINE FLOOD EXTENT (1% AEP+53% CC)

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date

Drawing Suitability: **PUBLISHED** Status: **A1**

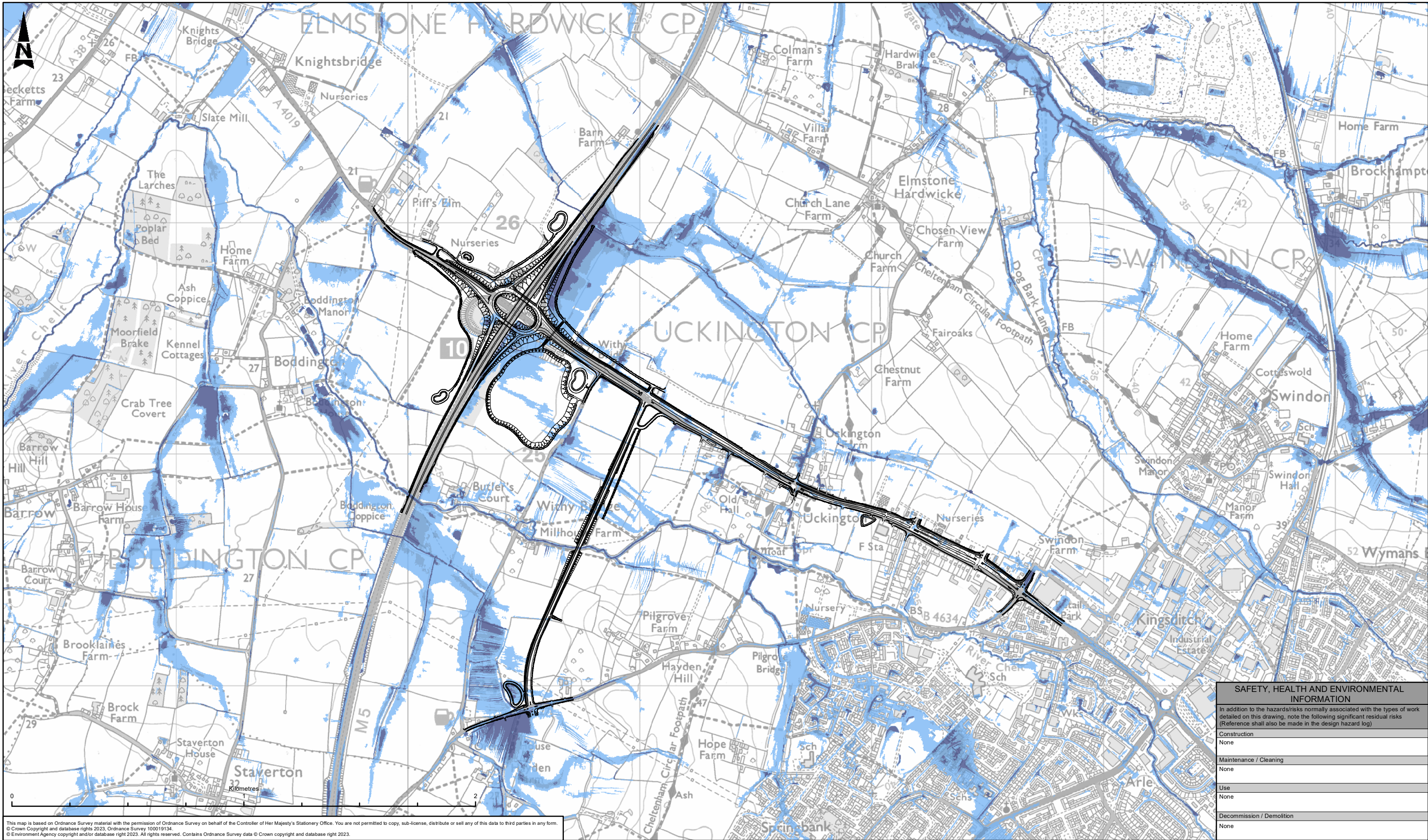
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Client: **Gloucestershire COUNTY COUNCIL**

Project Title: **M5 Junction 10 Improvements Scheme**

Drawing Title: **FIGURE 8-5
1% AEP BASELINE FLOOD EXTENT
MAP - FUTURE WITH 53% CLIMATE CHANGE**

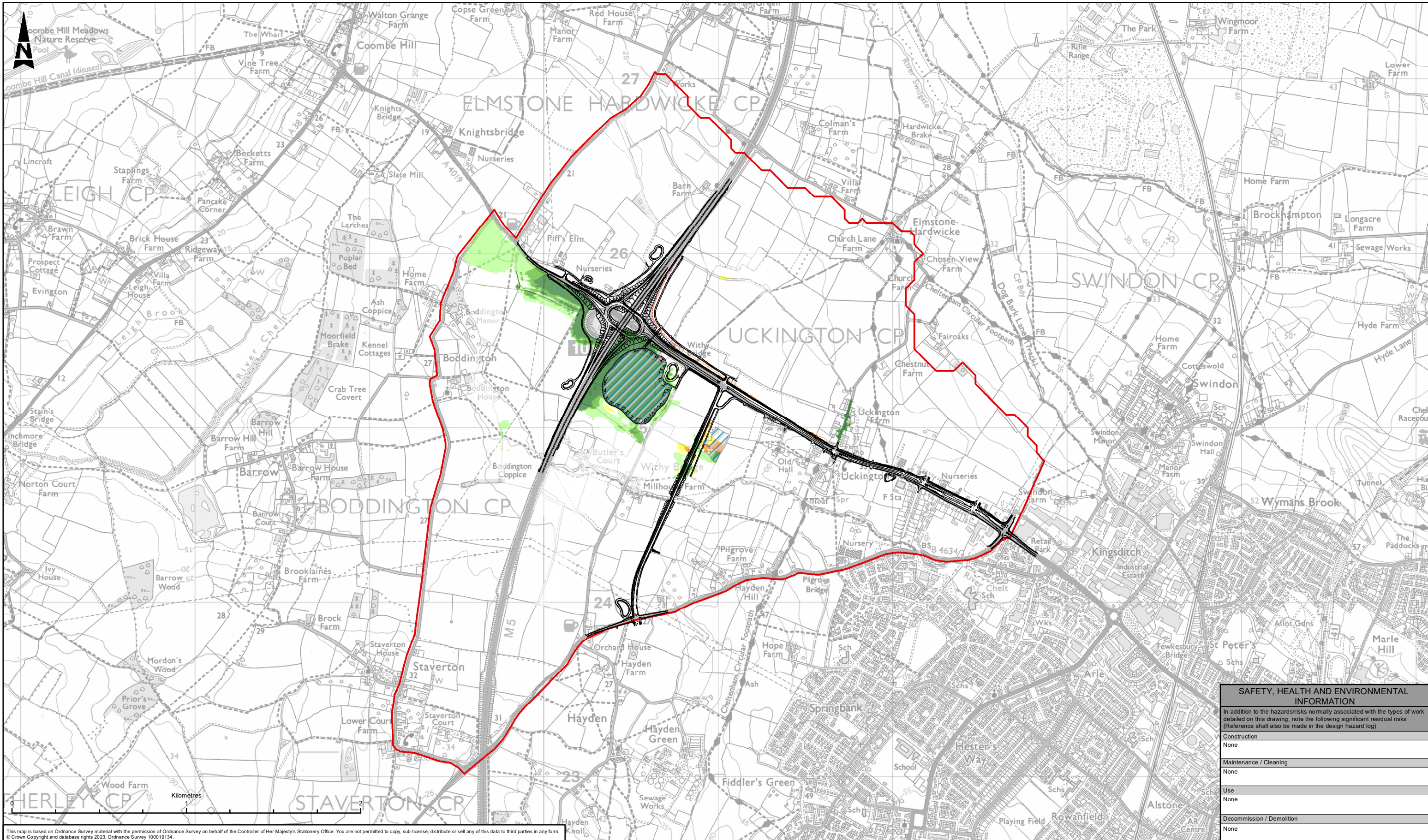
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ZZ - GS - GI - 000009		
Location	Type	Rate
Scale	Project Ref.	Sheet
Original Size: A3	1:20,000	5214106
		1 of 1
		P02



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Construction	None
Maintenance / Cleaning	None
Use	None
Decommission / Demolition	None

LEGEND — SCHEME ALIGNMENT RISK CATEGORY ■ HIGH ■ MEDIUM ■ LOW ■ VERY LOW	<table border="1"> <tr> <th>Description</th> <th>Status</th> <th>Revision</th> <th>Drawn</th> <th>Checked</th> <th>Reviewed</th> <th>Authorised</th> <th>Issue Date</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>	Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date									Drawing Suitability PUBLISHED	Status A1	Project Title M5 Junction 10 Improvements Scheme										
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	Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date																						
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LEGEND

- SCHEME ALIGNMENT
- MODEL DOMAIN
- FLOOD STORAGE AREA

FLOOD LEVEL DIFFERENCE

- <-100 mm
- 50 to -100 mm
- 10 to -50mm
- 10 to 10mm
- 10 to 50 mm
- 50 to 100 mm
- >100 mm

DIFFERENCE = WITH-SCHEME FLOOD LEVELS MINUS BASELINE FLOOD LEVELS. POSITIVE RESULTS INDICATE A DETRIMENT TO FLOOD LEVELS, WHILST NEGATIVE RESULTS INDICATE A BETTERMENT TO FLOOD LEVELS.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

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Construction	None
Maintenance / Cleaning	None
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Decommission / Demolition	None

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Project Title	M5 Junction 10 Improvements Scheme
Drawing Title	FIGURE 8-7 1% AEP LEVEL DIFFERENCE MAP - PRESENT DAY
Drawing Number	Project: GCCM5J10 - ATK - EWE Originator: ZZ - GS - GI - 000010 Volume: 1 of 1
Original Size: A3	Scale: 1:20,000 Project Ref: 5214106 Sheet: 1 of 1 Rev: P02



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Maintenance / Cleaning	None
Use	None
Decommission / Demolition	None

LEGEND	
	SCHEME ALIGNMENT
	MODEL DOMAIN
	FLOOD STORAGE AREA

FLOOD LEVEL DIFFERENCE	
	<-100 mm
	-50 to -100 mm
	-10 to -50mm
	-10 to 10mm
	10 to 50 mm
	50 to 100 mm
	>100 mm

DIFFERENCE = WITH-SCHEME FLOOD LEVELS MINUS BASELINE FLOOD LEVELS.
 POSITIVE RESULTS INDICATE A DETRIMENT TO FLOOD LEVELS,
 WHILST NEGATIVE RESULTS INDICATE A BETTERMENT TO FLOOD LEVELS.

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
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Project Title	M5 Junction 10 Improvements Scheme
Drawing Title	FIGURE 8-8 1% AEP LEVEL DIFFERENCE MAP - FUTURE WITH 53% CLIMATE CHANGE
Drawing Number	Project: GCCM5J10 - ATK - EWE ZZ - GS - GI - 000011
Original Size: A3	Scale: 1:20,000
Project Ref: 5214106	Sheet: 1 of 1
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