

A12 Chelmsford to A120 widening scheme TR010060

6.3 ENVIRONMENTAL STATEMENT APPENDIX 14.6 SURFACE WATER DRAINAGE STRATEGY ANNEX A – PART 5

APFP Regulation 5(2)(a)

Planning Act 2008

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

Volume 6

August 2022

Infrastructure Planning

Planning Act 2008

A12 Chelmsford to A120 widening scheme

Development Consent Order 202[]

ENVIRONMENTAL STATEMENT

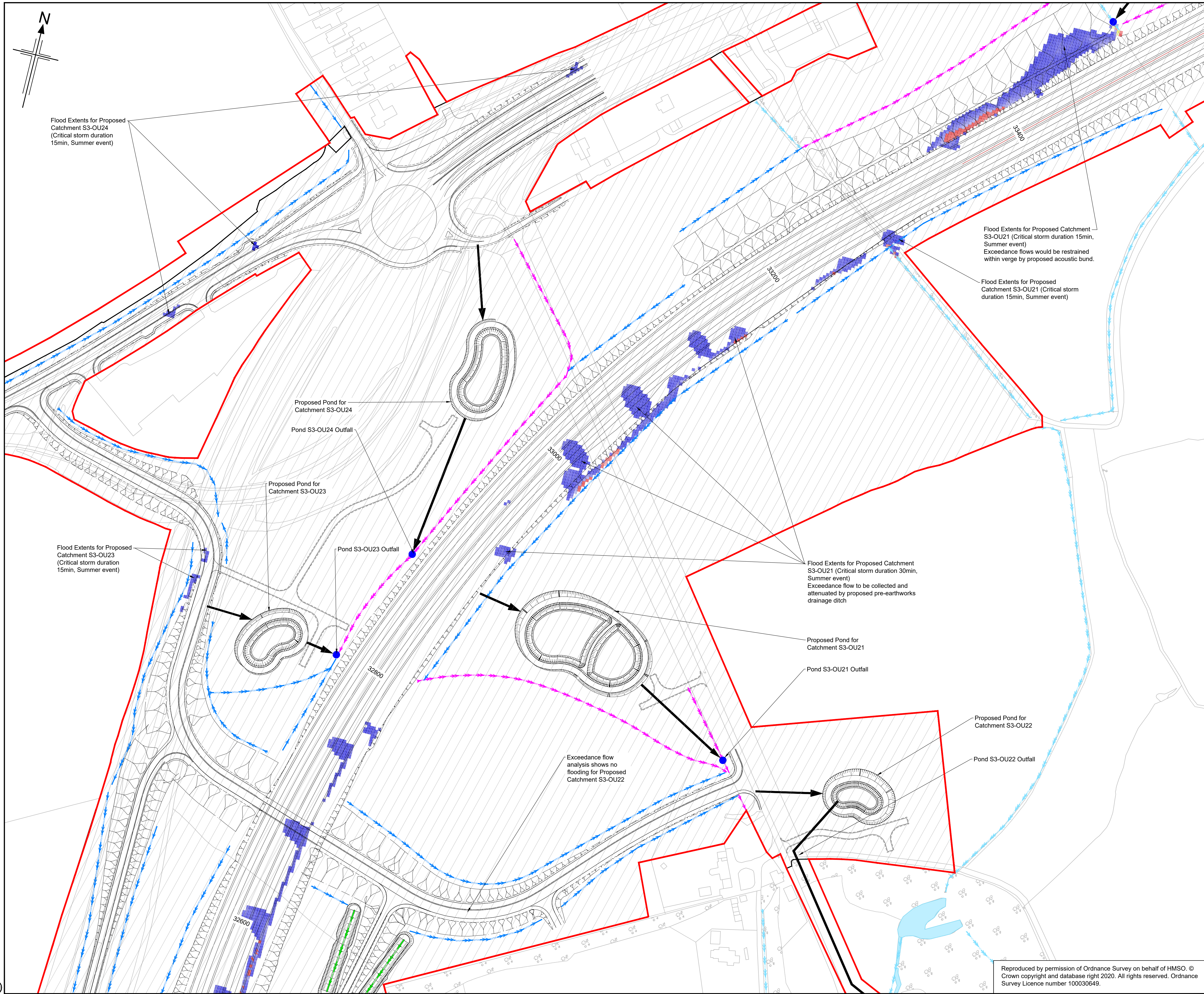
APPENDIX 14.6 SURFACE WATER DRAINAGE STRATEGY

ANNEX A – PART 5

Regulation Reference	Regulation 5(2)(a)
Planning Inspectorate Scheme Reference	TR010060
Application Document Reference	TR010060/APP/6.3
Author	A12 Project Team and National Highways

Version	Date	Status of Version
Rev 1	August 2022	DCO Application

c:\pwworking\jacobs_uk_highways_ssa\deshpavsu0155538\HE551497-JAC-LDC-S3-DR-D-0877.dwg - 7/25/2022 2:09:14 PM - A1Frame - DeshpavS



SURFACE WATER DRAINAGE STRATEGY
ANNEX A -PART 5

- NOTES
1. Drawing is to be printed in colour.
 2. Do not scale from this drawing, use only printed dimensions.
 3. This drawing is to be read in conjunction with the Surface Water Drainage Strategy Report documented in Appendix 14.6 of the Environmental Statement [TR010060/APP/6.3] and Drainage and Surface Water Plan [TR010060/APP/2.13], (Drawing number HE551497-JAC-LDC-SCHW-DR-D-0815).
 4. The flood extents shown on these plans have been developed based on the proposed drainage design solutions and flood exceedance assessment undertaken at the preliminary drainage design stage.
 5. The flood extents shown on these plans may be subject to change as part of the design development in the detailed design stage. Any changes will require the flood exceedance assessment and flood extents to be reviewed and updated accordingly.
 6. No exceedance flow analysis has been undertaken for existing catchments; S3-OU23 and S3-OU24.

LEGEND

- Order Limits
- Proposed Scheme Permanent Acquisition of Land Boundary
- Proposed Highway Drainage Outfall
- Proposed Attenuation Pond
- Proposed Attenuation Pond Access Track
- Proposed Underground Storage Units
- Indicative Outfall Route
- Proposed Swale/ Vegetated Ditch
- Pre-Earthworks Drainage (proposed ditch)
- Pre-Earthworks Drainage (existing ditch to be retained)
- Pre-Earthworks Drainage (existing ditch to be abandoned)
- Pre-Earthworks Drainage (diverted/regarded ditch)
- Pre-Earthworks Drainage (proposed filter drain)
- Pre-Earthworks Drainage (existing filter drain to be retained)
- Minor Watercourse (to be retained)
- Minor Watercourse (to be abandoned)
- Minor Watercourse (proposed diversion)
- Proposed watercourse diversion (main river)
- Existing Waterbodies/ Main River

EXCEEDANCE FLOW ANALYSIS: 1 in 100 yr + 40%CC

- 10-100 mm Flood Depth
- 100-300 mm Flood Depth
- 300-600 mm Flood Depth
- >600 mm Flood Depth
- Existing Flooding

0 10 20 30 40 50 60 70 80 90 100
SCALE 1:1250 METRES

P01	22/07/22	FINAL FOR DCO APPLICATION	VD	AM	JT	SG
Rev	Rev. Date	Purpose of revision	Drawn	Checked	Rev'd	Apprv'd

Development Consent Order Number:	Development Consent Order Drawing Number:
TR010060	TR010060/APP/6.3



Project

A12 CHELMSFORD TO A120 WIDENING SCHEME

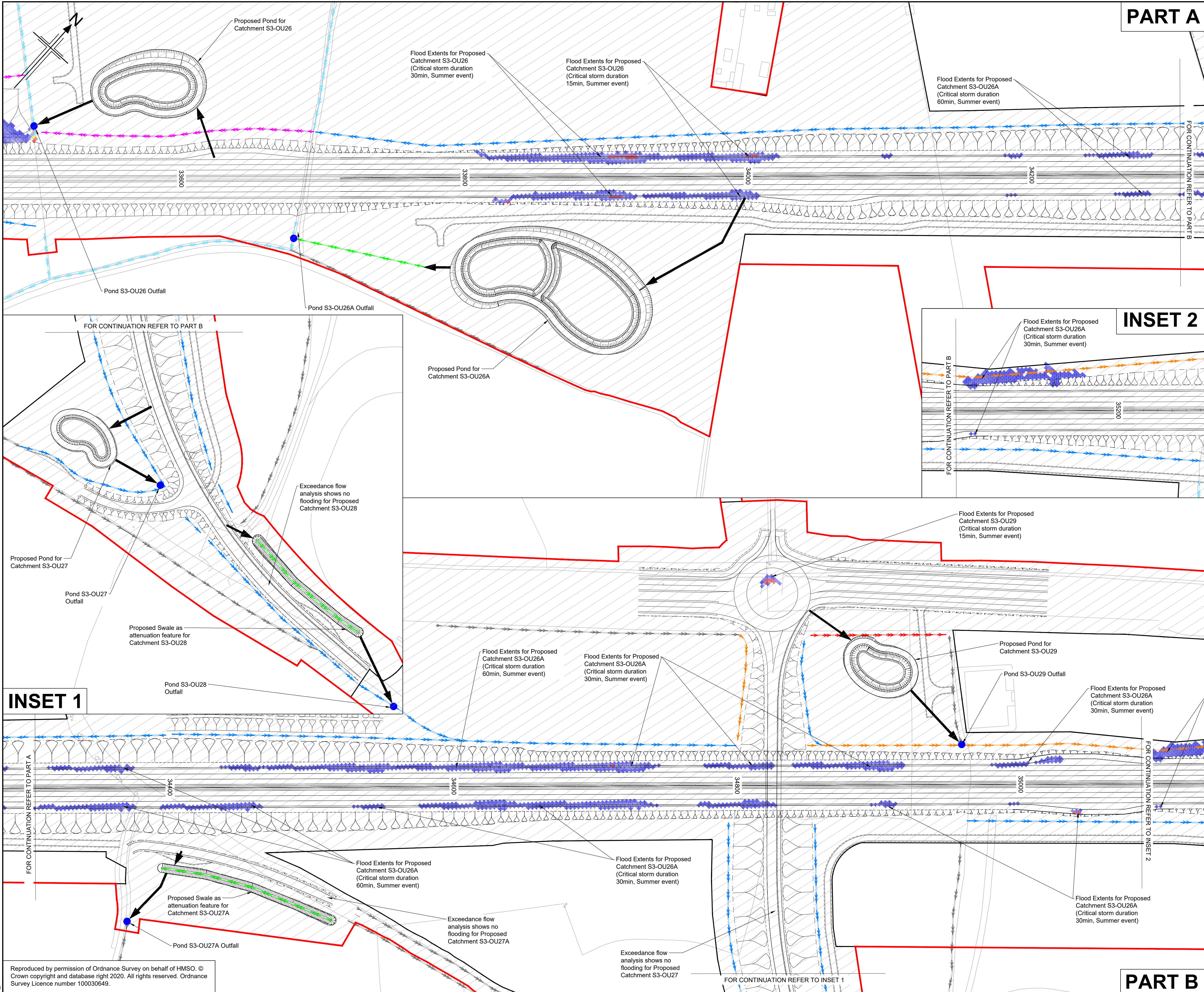
Drawing title

**EXCEEDANCE FLOW ANALYSIS
100YR PLUS 40%CC EVENT
PROPOSED CATCHMENTS
S3-OU21, OU22, OU23 & OU24**

Regulation	REGULATION 5(2)(a)				
Purpose of issue	DCO APPLICATION				
State Code	Preliminary				Drawing status
Project Stage	PCF 3				S4
Scale at A1 (841x594mm)	1:1250				Rev
Jacobs No.	B36601D1				P01
Client no.	HE551497				

Drawing number	PIN	Originator	Volume
HE551497 -	JAC	LDC -	
S3		-DR- D -0877	

Reproduced by permission of Ordnance Survey on behalf of HMSO. © Crown copyright and database right 2020. All rights reserved. Ordnance Survey Licence number 100030649.



PART A

SURFACE WATER DRAINAGE STRATEGY
ANNEX A -PART 5

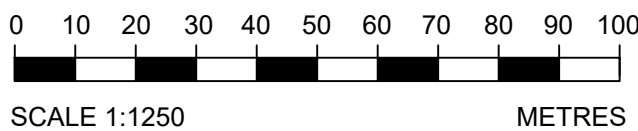
- NOTES
1. Drawing is to be printed in colour.
 2. Do not scale from this drawing, use only printed dimensions.
 3. This drawing is to be read in conjunction with the Surface Water Drainage Strategy Report documented in Appendix 14.6 of the Environmental Statement [TR010060/APP/6.3] and Drainage and Surface Water Plans [TR010060/APP/2.13], (Drawing numbers HE551497-JAC-LDC-SCHW-DR-D-0815 and 0816).
 4. The flood extents shown on these plans have been developed based on the proposed drainage design solutions and flood exceedance assessment undertaken at the preliminary drainage design stage.
 5. The flood extents shown on these plans may be subject to change as part of the design development in the detailed design stage. Any changes will require the flood exceedance assessment and flood extents to be reviewed and updated accordingly.
 6. No exceedance flow analysis has been undertaken for existing catchment; S3-OU29.

LEGEND

- Order Limits
- Proposed Scheme Permanent Acquisition of Land Boundary
- Proposed Highway Drainage Outfall
- Proposed Attenuation Pond
- Proposed Attenuation Pond Access Track
- Proposed Underground Storage Units
- Indicative Outfall Route
- Proposed Swale/ Vegetated Ditch
- Pre-Earthworks Drainage (proposed ditch)
- Pre-Earthworks Drainage (existing ditch to be retained)
- Pre-Earthworks Drainage (existing ditch to be abandoned)
- Pre-Earthworks Drainage (diverted/regarded ditch)
- Pre-Earthworks Drainage (proposed filter drain)
- Pre-Earthworks Drainage (existing filter drain to be retained)
- Minor Watercourse (to be retained)
- Minor Watercourse (to be abandoned)
- Minor Watercourse (proposed diversion)
- Proposed watercourse diversion (main river)
- Existing Waterbodies/ Main River

EXCEEDANCE FLOW ANALYSIS: 1 in 100 yr + 40%CC

- 10-100 mm Flood Depth
- 100-300 mm Flood Depth
- 300-600 mm Flood Depth
- >600 mm Flood Depth
- Existing Flooding



P01	22/07/22	FINAL FOR DCO APPLICATION	VD	AM	JT	SG
Rev	Rev. Date	Purpose of revision	Drawn	Checked	Rev'd	Apprv'd

Development Consent Order Number:	Development Consent Order Drawing Number:
TR010060	TR010060/APP/6.3



A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing title
**EXCEEDANCE FLOW ANALYSIS
100YR PLUS 40%CC EVENT
PROPOSED CATCHMENTS-S3OU26
OU26A,OU27,OU27A,OU28&OU29**

Regulation	REGULATION 5(2)(a)				
Purpose of issue	DCO APPLICATION				
State Code	Preliminary				Drawing status
Project Stage	PCF 3				S4
Scale at A1 (841x594mm)	1:1250				Rev
Jacobs No.	B36601D1				P01
Client no.	HE551497				

Drawing number	PIN	Originator	Volume
HE551497 -	JAC	LDC-	
S3		-DR-	D -0878

INSET 2

INSET 1

PART B

Exceedance flow analysis shows no flooding for Proposed Catchment S3-OU27

Flood Extents for Proposed Catchment S3-OU26A (Critical storm duration 60min, Summer event)

Flood Extents for Proposed Catchment S3-OU26A (Critical storm duration 30min, Summer event)

Proposed Swale as attenuation feature for Catchment S3-OU27A

Pond S3-OU27A Outfall

Pond S3-OU28 Outfall

Proposed Swale as attenuation feature for Catchment S3-OU28

Pond S3-OU27 Outfall

Proposed Pond for Catchment S3-OU27

Proposed Pond for Catchment S3-OU26A

Pond S3-OU26A Outfall

Pond S3-OU26 Outfall

Flood Extents for Proposed Catchment S3-OU26 (Critical storm duration 30min, Summer event)

Flood Extents for Proposed Catchment S3-OU26 (Critical storm duration 15min, Summer event)

Flood Extents for Proposed Catchment S3-OU26A (Critical storm duration 60min, Summer event)

Flood Extents for Proposed Catchment S3-OU26A (Critical storm duration 30min, Summer event)

Flood Extents for Proposed Catchment S3-OU29 (Critical storm duration 15min, Summer event)

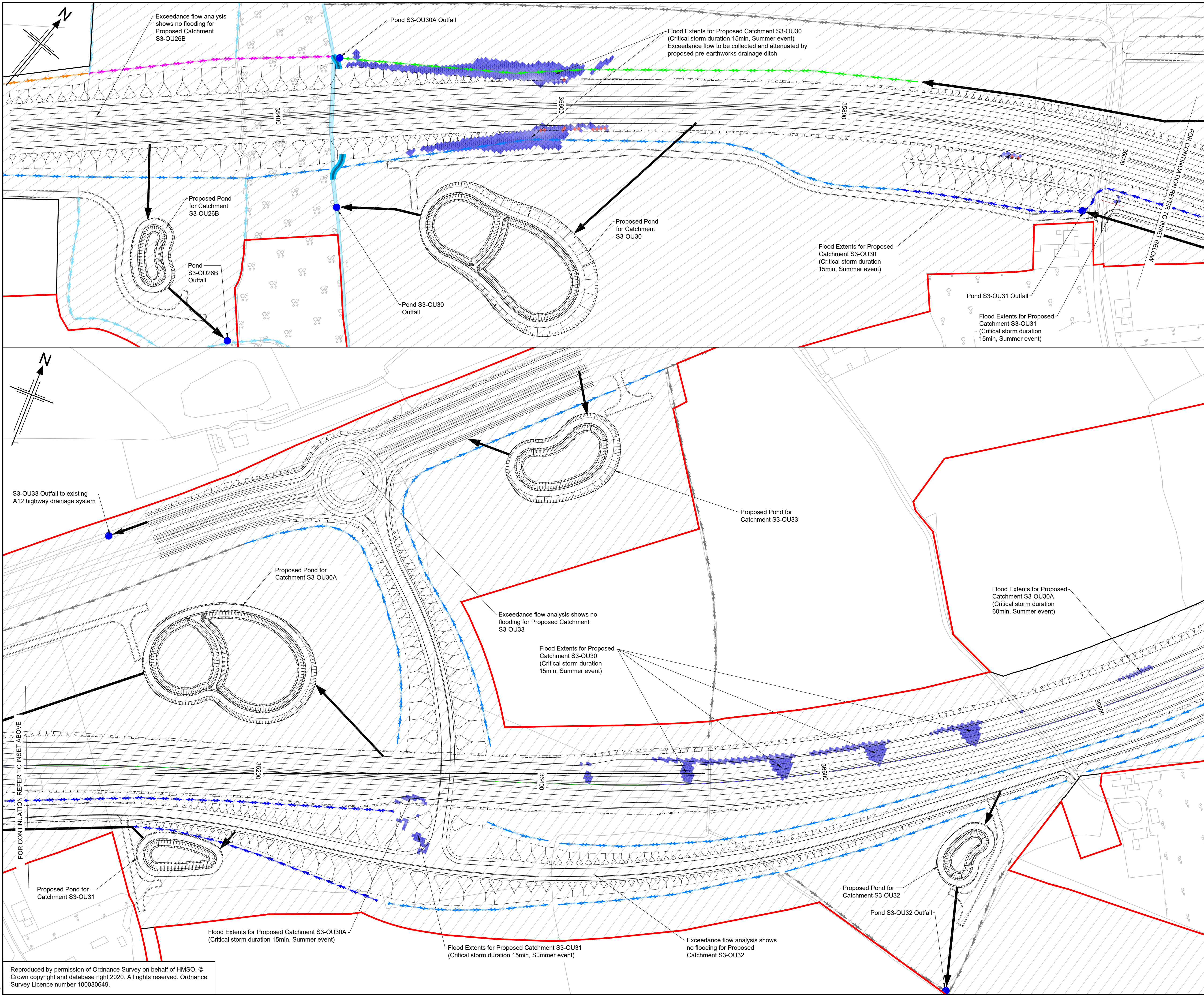
Proposed Pond for Catchment S3-OU29

Pond S3-OU29 Outfall

Flood Extents for Proposed Catchment S3-OU26A (Critical storm duration 30min, Summer event)

Flood Extents for Proposed Catchment S3-OU26A (Critical storm duration 30min, Summer event)

c:\pwworking\jacobs_uk_highways_ssa\deshpas\0155530HE551497-JAC-LDC-S3-DR-D-0879.dwg - 7/25/2022 2:11:36 PM - A1Frame - Deshpas\VS

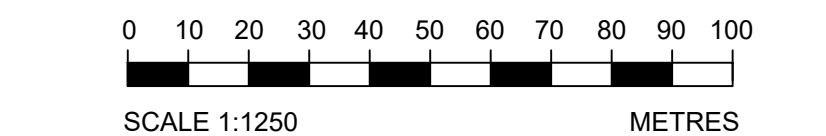


SURFACE WATER DRAINAGE STRATEGY ANNEX A -PART 5

- NOTES
1. Drawing is to be printed in colour.
 2. Do not scale from this drawing, use only printed dimensions.
 3. This drawing is to be read in conjunction with the Surface Water Drainage Strategy Report documented in Appendix 14.6 of the Environmental Statement [TR010060/APP/6.3] and Drainage and Surface Water Plan [TR010060/APP/2.13]. (Drawing number HE551497-JAC-LDC-SHW-DR-D-0817).
 4. The flood extents shown on these plans have been developed based on the proposed drainage design solutions and flood exceedance assessment undertaken at the preliminary drainage design stage.
 5. The flood extents shown on these plans may be subject to change as part of the design development in the detailed design stage. Any changes will require the flood exceedance assessment and flood extents to be reviewed and updated accordingly.
 6. No exceedance flow analysis has been undertaken for existing catchment; S3-OU33.

- LEGEND
- Order Limits
 - Proposed Scheme Permanent Acquisition of Land Boundary
 - Proposed Highway Drainage Outfall
 - Proposed Attenuation Pond
 - Proposed Attenuation Pond Access Track
 - Proposed Underground Storage Units
 - Indicative Outfall Route
 - Proposed Swale/ Vegetated Ditch
 - Pre-Earthworks Drainage (proposed ditch)
 - Pre-Earthworks Drainage (existing ditch to be retained)
 - Pre-Earthworks Drainage (existing ditch to be abandoned)
 - Pre-Earthworks Drainage (diverted/regarded ditch)
 - Pre-Earthworks Drainage (proposed filter drain)
 - Pre-Earthworks Drainage (existing filter drain to be retained)
 - Minor Watercourse (to be retained)
 - Minor Watercourse (to be abandoned)
 - Minor Watercourse (proposed diversion)
 - Proposed watercourse diversion (main river)
 - Existing Waterbodies/ Main River

- EXCEEDANCE FLOW ANALYSIS: 1 in 100 yr + 40%CC
- 10-100 mm Flood Depth
 - 100-300 mm Flood Depth
 - 300-600 mm Flood Depth
 - >600 mm Flood Depth
 - Existing Flooding



P01	22/07/22	FINAL FOR DCO APPLICATION	VP	AM	JT	SG			
Rev	Rev. Date	Purpose of revision	Drawn	Checked	Rev'd	Apprv'd			

Development Consent Order Number:	Development Consent Order Drawing Number:
TR010060	TR010060/APP/6.3



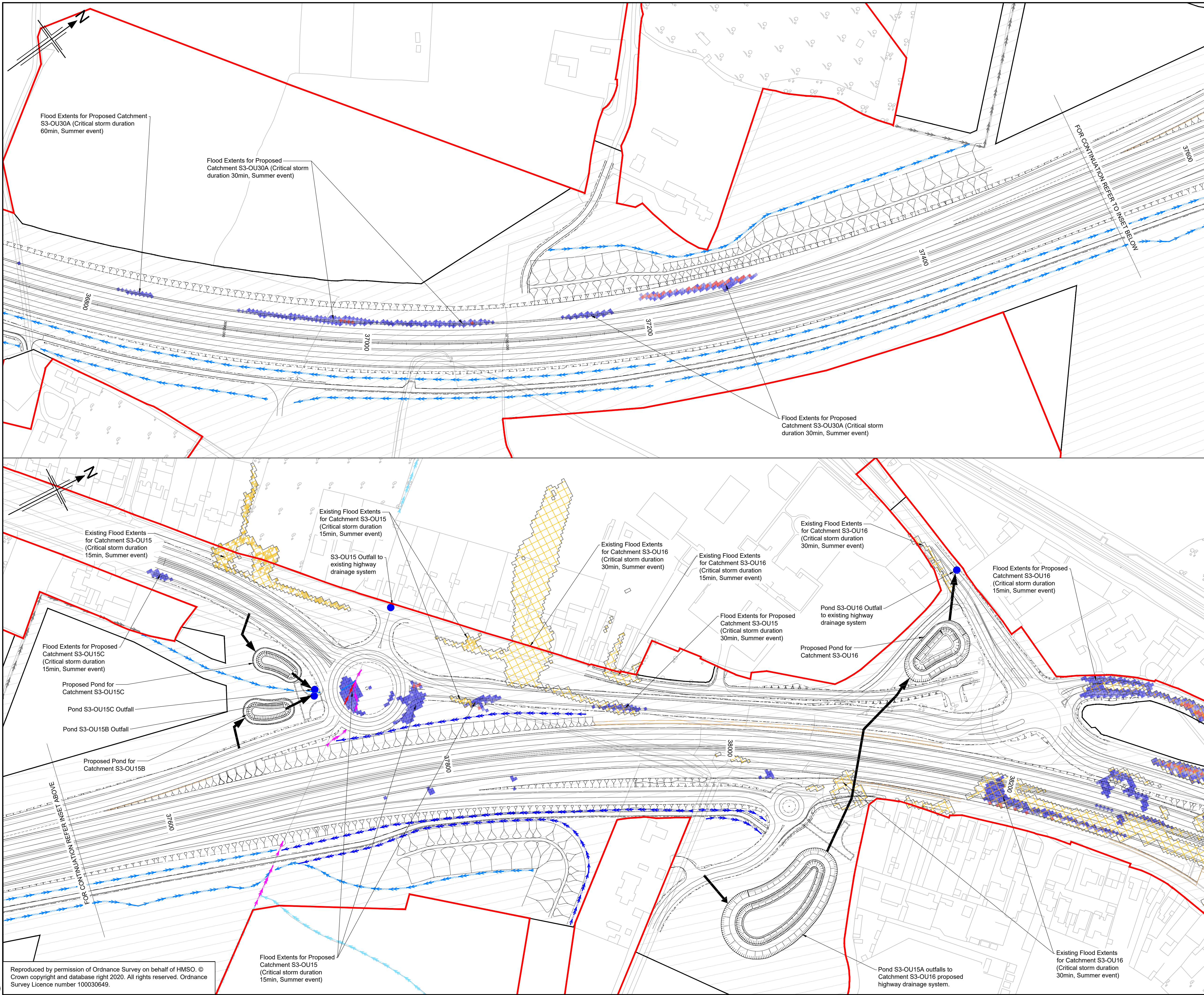
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing title
**EXCEEDANCE FLOW ANALYSIS
100YR PLUS 40%CC EVENT
PROPOSED CATCHMENTS-S3OU30
OU26B,OU30A,OU31,OU32&OU33**

Regulation	REGULATION 5(2)(a)		
Purpose of issue	DCO APPLICATION		
State Code	Preliminary		
Project Stage	PCF 3	Drawing status	S4
Scale at A1 (841x594mm)	1:1250	Rev	P01
Jacobs No.	B36601D1		
Client no.	HE551497		

Drawing number	PIN	Originator	Volume
HE551497 -	JAC	LDC -	
S3		-DR- D -0879	

c:\pwworking\jacobs_uk_highways_ssa\deshpavsv0155530\HE551497-JAC-LDC-S3-DR-D-0880.dwg - 7/25/2022 2:12:38 PM - A1Frame - DeshpavS

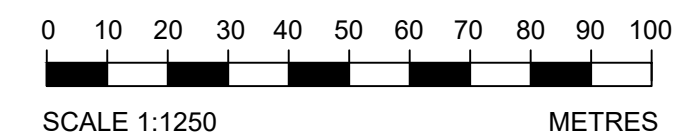


SURFACE WATER DRAINAGE STRATEGY
ANNEX A -PART 5

- NOTES
1. Drawing is to be printed in colour.
 2. Do not scale from this drawing, use only printed dimensions.
 3. This drawing is to be read in conjunction with the Surface Water Drainage Strategy Report documented in Appendix 14.6 of the Environmental Statement [TR010060/APP/6.3] and Drainage and Surface Water Plan [TR010060/APP/2.13]. (Drawing number HE551497-JAC-LDC-SHW-DR-D-0818).
 4. The flood extents shown on these plans have been developed based on the proposed drainage design solutions and flood exceedance assessment undertaken at the preliminary drainage design stage.
 5. The flood extents shown on these plans may be subject to change as part of the design development in the detailed design stage. Any changes will require the flood exceedance assessment and flood extents to be reviewed and updated accordingly.

- LEGEND
- Order Limits
 - Proposed Scheme Permanent Acquisition of Land Boundary
 - Proposed Highway Drainage Outfall
 - Proposed Attenuation Pond
 - Proposed Attenuation Pond Access Track
 - Proposed Underground Storage Units
 - Indicative Outfall Route
 - Proposed Swale/ Vegetated Ditch
 - Pre-Earthworks Drainage (proposed ditch)
 - Pre-Earthworks Drainage (existing ditch to be retained)
 - Pre-Earthworks Drainage (existing ditch to be abandoned)
 - Pre-Earthworks Drainage (diverted/regarded ditch)
 - Pre-Earthworks Drainage (proposed filter drain)
 - Pre-Earthworks Drainage (existing filter drain to be retained)
 - Minor Watercourse (to be retained)
 - Minor Watercourse (to be abandoned)
 - Minor Watercourse (proposed diversion)
 - Proposed watercourse diversion (main river)
 - Existing Waterbodies/ Main River

- EXCEEDANCE FLOW ANALYSIS: 1 in 100 yr + 40%CC
- 10-100 mm Flood Depth
 - 100-300 mm Flood Depth
 - 300-600 mm Flood Depth
 - >600 mm Flood Depth
 - Existing Flooding



P01	22/07/22	FINAL FOR DCO APPLICATION	VP	AM	JT	SG
Rev	Rev. Date	Purpose of revision	Drawn	Checked	Rev'd	Apprv'd

Development Consent Order Number:	Development Consent Order Drawing Number:
TR010060	TR010060/APP/6.3

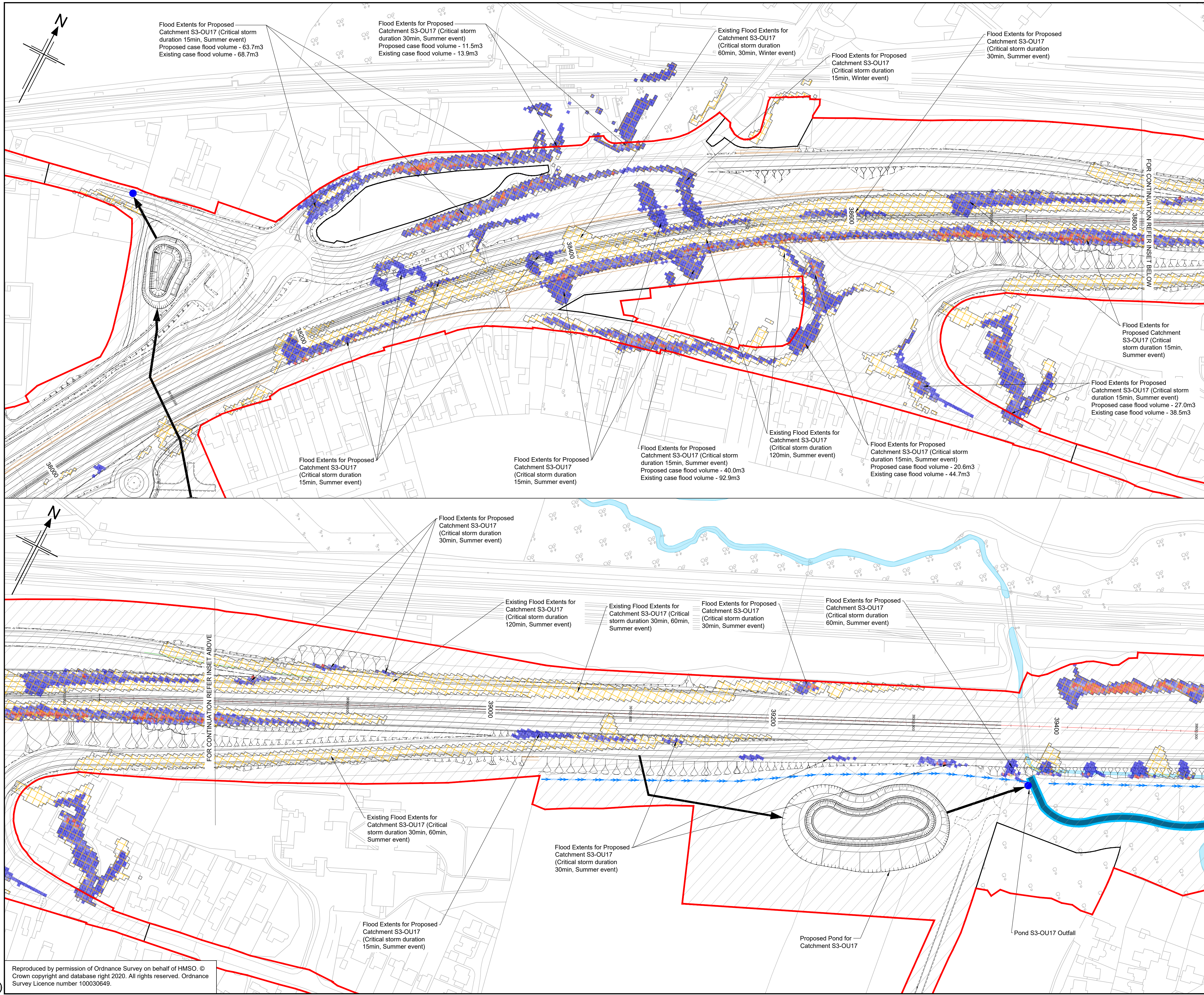


Project
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing title
**EXCEEDANCE FLOW ANALYSIS
100YR PLUS 40%CC EVENT
PROPOSED CATCHMENTS-S3OU15
OU15A, OU15B, OU15C & OU16**

Regulation	REGULATION 5(2)(a)
Purpose of issue	DCO APPLICATION
State Code	Preliminary
Project Stage	PCF 3
Scale at A1 (841x594mm)	1:1250
Jacobs No.	B36601D1
Client no.	HE551497
Drawing number	PIN
HE551497 - S3	Originator JAC - LDC - S3
Volume	Location
	Type Role Number
	-DR- D -0880

c:\pwworking\jacobs_uk_highways_ssa\deshpas\0155530\HE551497-JAC-LDC-S3-DR-D-0881.dwg - 7/25/2022 2:13:50 PM - A1Frame - DeshpasVS

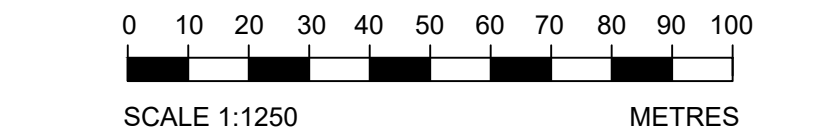


SURFACE WATER DRAINAGE STRATEGY ANNEX A -PART 5

- NOTES
1. Drawing is to be printed in colour.
 2. Do not scale from this drawing, use only printed dimensions.
 3. This drawing is to be read in conjunction with the Surface Water Drainage Strategy Report documented in Appendix 14.6 of the Environmental Statement [TR010060/APP/6.3] and Drainage and Surface Water Plans [TR010060/APP/2.13]. (Drawing numbers HE551497-JAC-LDC-SHW-DR-D-0818 and 0819).
 4. The flood extents shown on these plans have been developed based on the proposed drainage design solutions and flood exceedance assessment undertaken at the preliminary drainage design stage.
 5. The flood extents shown on these plans may be subject to change as part of the design development in the detailed design stage. Any changes will require the flood exceedance assessment and flood extents to be reviewed and updated accordingly.

- LEGEND
- Order Limits
 - Proposed Scheme Permanent Acquisition of Land Boundary
 - Proposed Highway Drainage Outfall
 - Proposed Attenuation Pond
 - Proposed Attenuation Pond Access Track
 - Proposed Underground Storage Units
 - Indicative Outfall Route
 - Proposed Swale/ Vegetated Ditch
 - Pre-Earthworks Drainage (proposed ditch)
 - Pre-Earthworks Drainage (existing ditch to be retained)
 - Pre-Earthworks Drainage (existing ditch to be abandoned)
 - Pre-Earthworks Drainage (diverted/regarded ditch)
 - Pre-Earthworks Drainage (proposed filter drain)
 - Pre-Earthworks Drainage (existing filter drain to be retained)
 - Minor Watercourse (to be retained)
 - Minor Watercourse (to be abandoned)
 - Minor Watercourse (proposed diversion)
 - Proposed watercourse diversion (main river)
 - Existing Waterbodies/ Main River

- EXCEEDANCE FLOW ANALYSIS: 1 in 100 yr + 40%CC
- 10-100 mm Flood Depth
 - 100-300 mm Flood Depth
 - 300-600 mm Flood Depth
 - >600 mm Flood Depth
 - Existing Flooding



P01	22/07/22	FINAL FOR DCO APPLICATION	VP	AM	JT	SG
Rev	Rev. Date	Purpose of revision	Drawn	Checked	Rev'd	Apprv'd

Development Consent Order Number: TR010060
Development Consent Order Drawing Number: TR010060/APP/6.3

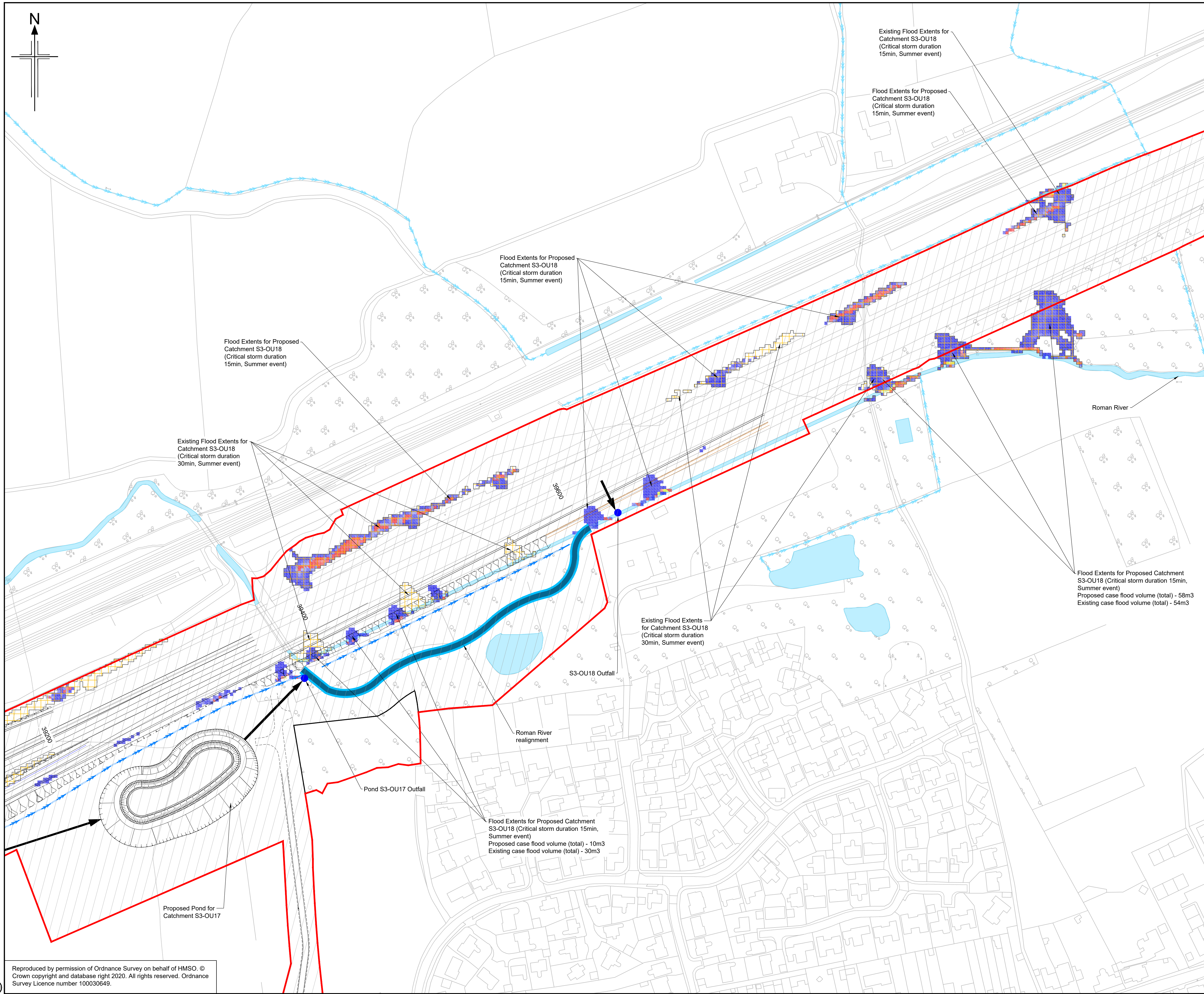


A12 CHELMSFORD TO A120 WIDENING SCHEME

EXCEEDANCE FLOW ANALYSIS 100YR PLUS 40%CC EVENT PROPOSED CATCHMENTS S3-OU17

Regulation		REGULATION 5(2)(a)			
Purpose of issue		DCO APPLICATION			
State Code		Preliminary			
Project Stage		PCF 3		Drawing status	
Scale at A1 (841x594mm)		1:1250		S4	
Jacobs No.		B36601D1		Rev	
Client no.		HE551497		P01	
Drawing number		PIN	Originator	Volume	
HE551497 -		JAC	-	LDC -	
Location		S3	-DR-	Type	Role
				D	Num
				-0881	

c:\pwworking\jacobs_uk_highways_ssa\deshpavsu0155530\HE51497-JAC-LDC-S3-DR-D-0882.dwg - 7/25/2022 2:44:41 PM - A1Frame - DeshpavS



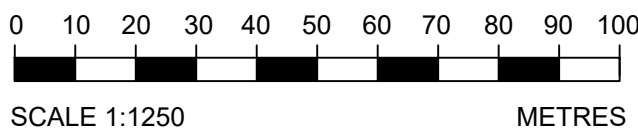
SURFACE WATER DRAINAGE STRATEGY
ANNEX A -PART 5

- NOTES
1. Drawing is to be printed in colour.
 2. Do not scale from this drawing, use only printed dimensions.
 3. This drawing is to be read in conjunction with the Surface Water Drainage Strategy Report documented in Appendix 14.6 of the Environmental Statement [TR010060/APP/6.3] and Drainage and Surface Water Plan [TR010060/APP/2.13]. (Drawing number HE551497-JAC-LDC-SCHW-DR-D-0819).
 4. The flood extents shown on these plans have been developed based on the proposed drainage design solutions and flood exceedance assessment undertaken at the preliminary drainage design stage.
 5. The flood extents shown on these plans may be subject to change as part of the design development in the detailed design stage. Any changes will require the flood exceedance assessment and flood extents to be reviewed and updated accordingly.

- LEGEND
- Order Limits
 - Proposed Scheme Permanent Acquisition of Land Boundary
 - Proposed Highway Drainage Outfall
 - Proposed Attenuation Pond
 - Proposed Attenuation Pond Access Track
 - Proposed Underground Storage Units
 - Indicative Outfall Route
 - Proposed Swale/ Vegetated Ditch
 - Pre-Earthworks Drainage (proposed ditch)
 - Pre-Earthworks Drainage (existing ditch to be retained)
 - Pre-Earthworks Drainage (existing ditch to be abandoned)
 - Pre-Earthworks Drainage (diverted/regarded ditch)
 - Pre-Earthworks Drainage (proposed filter drain)
 - Pre-Earthworks Drainage (existing filter drain to be retained)
 - Minor Watercourse (to be retained)
 - Minor Watercourse (to be abandoned)
 - Minor Watercourse (proposed diversion)
 - Proposed watercourse diversion (main river)
 - Existing Waterbodies/ Main River

EXCEEDANCE FLOW ANALYSIS: 1 in 100 yr + 40%CC

- 10-100 mm Flood Depth
- 100-300 mm Flood Depth
- 300-600 mm Flood Depth
- >600 mm Flood Depth
- Existing Flooding



P01	22/07/22	FINAL FOR DCO APPLICATION	VP	AM	JT	SG
Rev	Rev. Date	Purpose of revision	Drawn	Checked	Rev'd	Apprv'd

Development Consent Order Number:	Development Consent Order Drawing Number:
TR010060	TR010060/APP/6.3

Client

Project

A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing title

EXCEEDANCE FLOW ANALYSIS
100YR PLUS 40%CC EVENT
PROPOSED CATCHMENTS
S3-OU18

Regulation	REGULATION 5(2)(a)				
Purpose of issue	DCO APPLICATION				
State Code	Preliminary				Drawing status
Project Stage	PCF 3				S4
Scale at A1 (841x594mm)	1:1250				Rev
Jacobs No.	B36601D1				P01
Client no.	HE551497				

Drawing number	PIN	Originator	Volume
HE551497	JAC	LDC	
S3	-DR-	D	-0882