

Lower Thames Crossing

2.16 Drainage Plans Volume C (sheets 21 to 49) (Clean version)

APFP Regulation 5(2)(o)

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

Volume 2

DATE: November 2023
DEADLINE: 7

Planning Inspectorate Scheme Ref: TR010032
Application Document Ref: TR010032/APP/2.16

VERSION: 4.0

Revision History

Version	Date	Submitted at
1.0	31 October 2022	DCO Application
2.0	24 August 2023	Deadline 3
3.0	19 September 2023	Deadline 4
4.0	17 November 2023	Deadline 7

Lower Thames Crossing

2.16 Drainage Plans

Volume C (sheets 21 to 49)

(Clean version)

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1 Introduction

- 1.1.1 This document is submitted to the Planning Inspectorate on behalf of the Secretary of State in relation to an application made by National Highways (the Applicant) under section 37 of the Planning Act 2008.
- 1.1.2 The application is for the grant of development consent for the A122 Lower Thames Crossing. Should development consent be granted, the draft A122 (Lower Thames Crossing) Development Consent Order (Application Document 3.1) (the draft Order) will be made by the Secretary of State (subject to any modifications considered appropriate).
- 1.1.3 This document comprises part of the suite of application documentation and is included in the application to comply with Regulations 5(2)(o) and Regulation 5(4) of the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009, which require:
- 5(2)(o) 'any other plans, drawings and sections necessary to describe the proposals for which development consent is sought, showing details of design, external appearance, and the preferred layout of buildings or structures, drainage, surface water management, means of vehicular and pedestrian access, any car parking to be provided, and means of landscaping.*
- 5(4) Where a plan comprises three or more separate sheets a key plan must be provided showing the relationship between the different sheets.'*
- 1.1.4 The purpose of the Drainage Plans is to show the key features of the drainage design of the Project for which development consent is sought. Each sheet shows the relevant drainage design within the area shown. The highways design is shown in the background on the Drainage Plans for illustrative purposes and specifically to provide context and aid understanding of the works.
- 1.1.5 This plan set numbers all the proposed wetland and infiltration basins shown in the design. The works numbers provided are shown in the Works Plans (Application Document 2.6) and defined in Schedule 1 of the draft Order (Application Document 3.1).
- 1.1.6 Each sheet shows the relevant drainage design and works numbers applicable within the area shown. Reference should be made to the next relevant sheet for details of works numbers beyond the cut lines. Other information on the Drainage Plans is shown beyond the cut lines for completeness and context.
- 1.1.7 To ensure sufficient detail and clarity of information, the Drainage Plans (sheets 1 to 49) have been prepared at a scale of 1:2500. The key plan uses a smaller scale than that prescribed in Regulation 5(3) of the 2009 Regulations so that the Project can be represented on a single sheet plan.
- 1.1.8 The Applicant has adopted the same consistent approach for Drainage Plans as has been used for the following:
- a. Land Plans (Application Document 2.2)
 - b. Crown Land Plans (Application Document 2.3)

- c. Special Category Land Plans (Application Document 2.4)
- d. General Arrangement Plans (Application Document 2.5)
- e. Works Plans (Application Document 2.6)
- f. Rights of Way and Access Plans (Application Document 2.7)
- g. Streets Subject to Temporary Restrictions of Use Plans (Application Document 2.8)
- h. Traffic Regulation Measures Plans (Application Document 2.10)
- i. Temporary Works Plans (Application Document 2.17)
- j. Hedgerow and Tree Preservations Order Plans (Application Document 2.18)

- 1.1.9 The information contained on each sheet of the Drainage Plans corresponds with the geographical information shown on each sheet of the aforementioned sets. This is intended to help interested parties understand the inter-relationship between the different sets of plans and to help illustrate the design of the Project more clearly.
- 1.1.10 This approach means that there are some sheets that cover an area of the Project where there is no drainage design. On these sheets, the Applicant has introduced a label stating: 'No design information on this sheet'.
- 1.1.11 The Drainage Plans show the Order Limits and the relevant local authority boundaries. In this plan set, 'the Order Limits' mean the limits of lands to be acquired or used, permanently or temporarily, within which the authorised development may be carried out, as set out in Article 2 of the draft Order (Application Document 3.1).
- 1.1.12 This plan set uses a different legend on all sheets: it shows a consistent base key (presented across the plan set) followed by a sheet-specific key for catchment areas and outfalls. This means that there may be some items shown in the key that are not on a given sheet.
- 1.1.13 As this document has been informed by and is part of the application documentation it should be read alongside the other application documents. In particular, the plans should be read alongside Schedule 1 of the draft Order (Application Document 3.1).
- 1.1.14 To ensure that the file size of this document does not exceed the 50MB limit prescribed by the Planning Inspectorate, the set has been split into three volumes: volume A contains the key plan, volume B the initial sheets 1 to 20 and volume C contains the following sheets, 21 to 49.
- 1.1.15 These plans have been updated for Deadline 3 to include the minor amendments as advised by the Examining Authority in Rule 9 [[PD-022](#)].
- 1.1.16 These plans have been updated for Deadline 4 to include the proposed changes MRC01, MRC02 and MRC03 following the procedural decision made by the Examining Authority [[PD-031](#)].

- 1.1.17 These plans have been updated for Deadline 7 to include the proposed amendment EA07, as detailed in Deadline 5 cover letter [[REP5-001](#)].

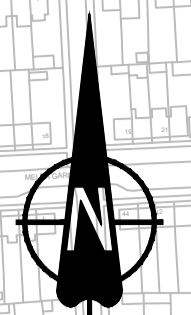
2 Schedule of Plans included in this application document

Document Title	Document Number	Revision
DRAINAGE PLANS REGULATION 5(2)(o) KEY PLAN	TR010032/APP/2.16	P04
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 1	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 2	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 3	TR010032/APP/2.16	P01
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 4	TR010032/APP/2.16	P01
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 5	TR010032/APP/2.16	P01
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 6	TR010032/APP/2.16	P01
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 7	TR010032/APP/2.16	P01
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 8	TR010032/APP/2.16	P01
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 9	TR010032/APP/2.16	P01
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 10	TR010032/APP/2.16	P01
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 11	TR010032/APP/2.16	P01

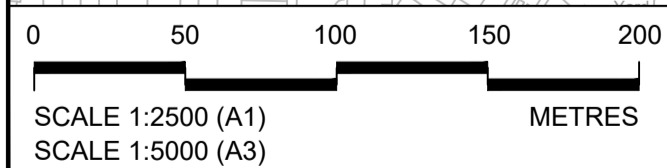
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DRAINAGE PLANS REGULATION 5(2)(o) SHEET 12	TR010032/APP/2.16	P01
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 13	TR010032/APP/2.16	P01
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 14	TR010032/APP/2.16	P01
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 15	TR010032/APP/2.16	P01
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 16	TR010032/APP/2.16	P01
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 17	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 18	TR010032/APP/2.16	P01
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 19	TR010032/APP/2.16	P01
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 20	TR010032/APP/2.16	P01
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 21	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 22	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 23	TR010032/APP/2.16	P03
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 24	TR010032/APP/2.16	P02

Document Title	Document Number	Revision
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 25	TR010032/APP/2.16	P01
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 26	TR010032/APP/2.16	P01
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 27	TR010032/APP/2.16	P01
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 28	TR010032/APP/2.16	P01
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 29	TR010032/APP/2.16	P01
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 30	TR010032/APP/2.16	P01
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 31	TR010032/APP/2.16	P01
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 32	TR010032/APP/2.16	P01
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 33	TR010032/APP/2.16	P01
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 34	TR010032/APP/2.16	P01
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 35	TR010032/APP/2.16	P01
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 36	TR010032/APP/2.16	P01
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 37	TR010032/APP/2.16	P01

Document Title	Document Number	Revision
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 38	TR010032/APP/2.16	P01
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 39	TR010032/APP/2.16	P01
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 40	TR010032/APP/2.16	P01
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DRAINAGE PLANS REGULATION 5(2)(o) SHEET 45	TR010032/APP/2.16	P01
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 46	TR010032/APP/2.16	P01
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 47	TR010032/APP/2.16	P01
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 48	TR010032/APP/2.16	P01
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 49	TR010032/APP/2.16	P01



**NO DESIGN INFORMATION ON THIS SHEET
FOR DRAINAGE PLANS**



Rev	Status	Rev. Date	Purpose of revision	Drawn	Chkd	Apprvd
P01	S8	19/10/2022	DCO Application	LY	BB	ASB
P02	S8	17/11/2023	Deadline 7	LY	BB	ASB

NOTES:

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- Where proposed catchment areas boundaries overlap with each other or the Order Limits they are shown adjacent to each other or the Order Limit to provide greater visual clarity but these could extend to the boundary of other catchment areas or the Order Limits as well.

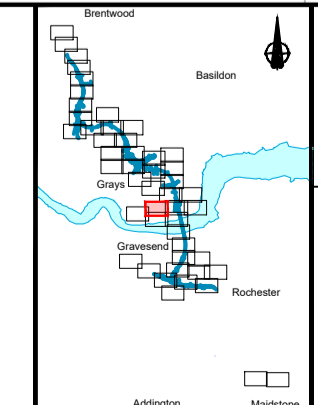
LEGEND:

BOUNDARIES

- Order Limits
- Local Authority boundary
- Existing watercourse

PROPOSED DRAINAGE

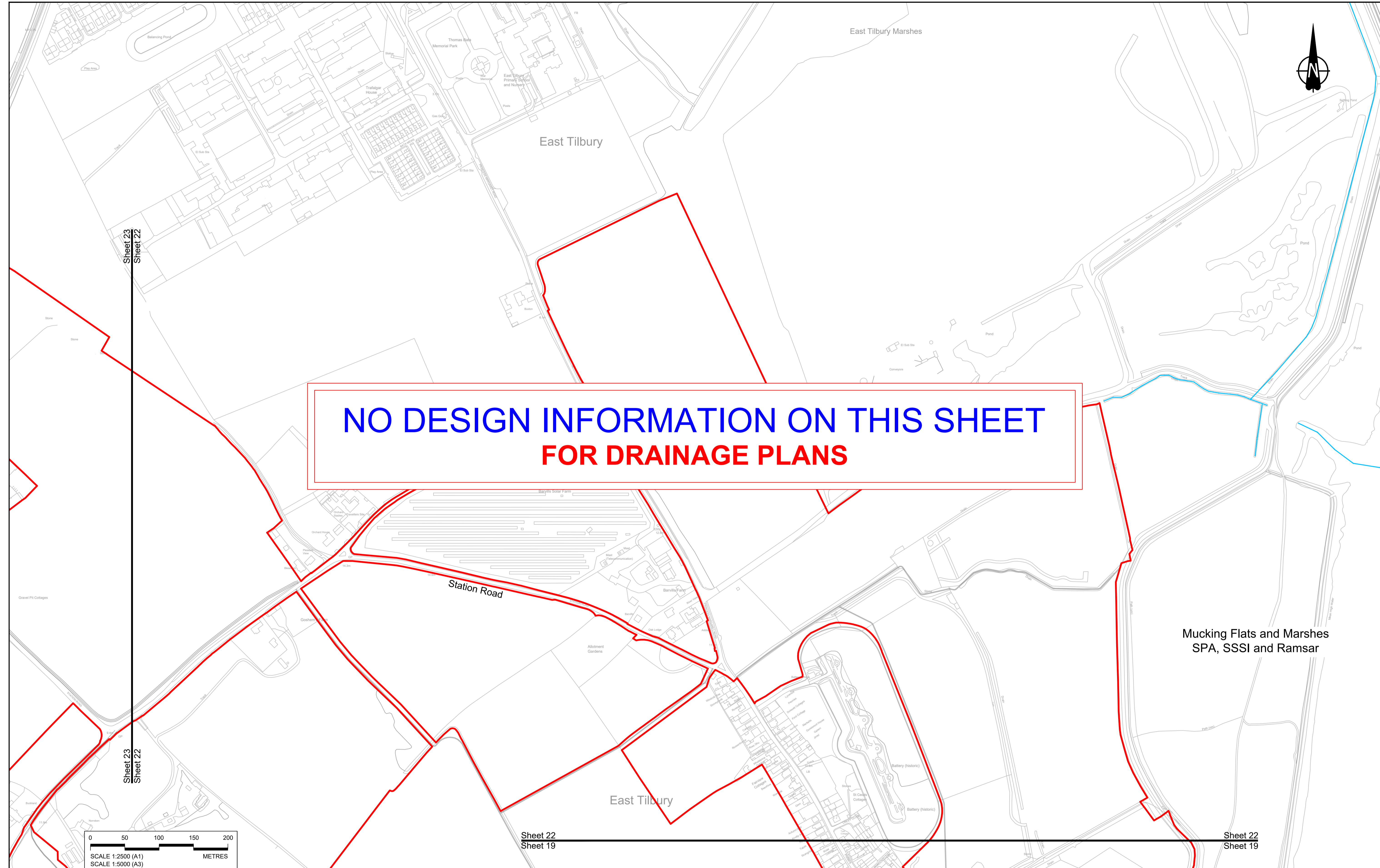
- Watercourse diversion
- Infiltration basin, attenuation pond, infiltration pond
- Swale
- Ditch
- Culvert or pipe
- P.S. Pumping station
- Containment for contaminated water from tunnel low point sump



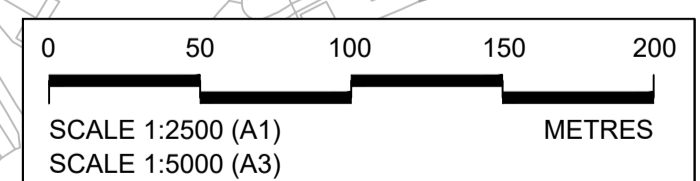
national highways

LOWER THAMES CROSSING

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Drawing title	DRAINAGE PLANS REGULATION 5(2)(o) SHEET 21				
Drawing Number	HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10018				



**NO DESIGN INFORMATION ON THIS SHEET
FOR DRAINAGE PLANS**



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Rev	Status	Rev. Date	Purpose of revision	Drawn	Check'd	Apprv'd
P01	S8	19/10/2022	DCO Application	LY	BB	ASB
P02	S8	19/09/2023	Deadline 4	MS	RO	ASB

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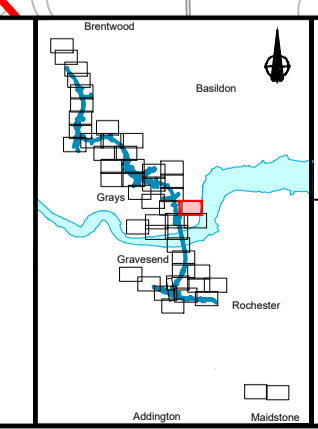
LEGEND:

BOUNDARIES

- Order Limits
- Local Authority boundary
- Existing watercourse

PROPOSED DRAINAGE

- Watercourse diversion
- Infiltration basin, attenuation pond, infiltration pond
- Swale
- Ditch
- Culvert or pipe
- P.S. Pumping station
- Containment for contaminated water from tunnel low point sump



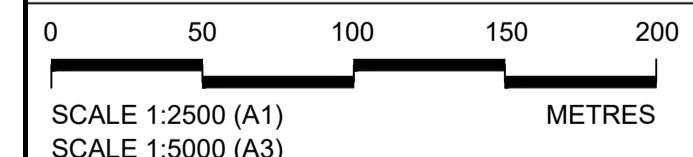
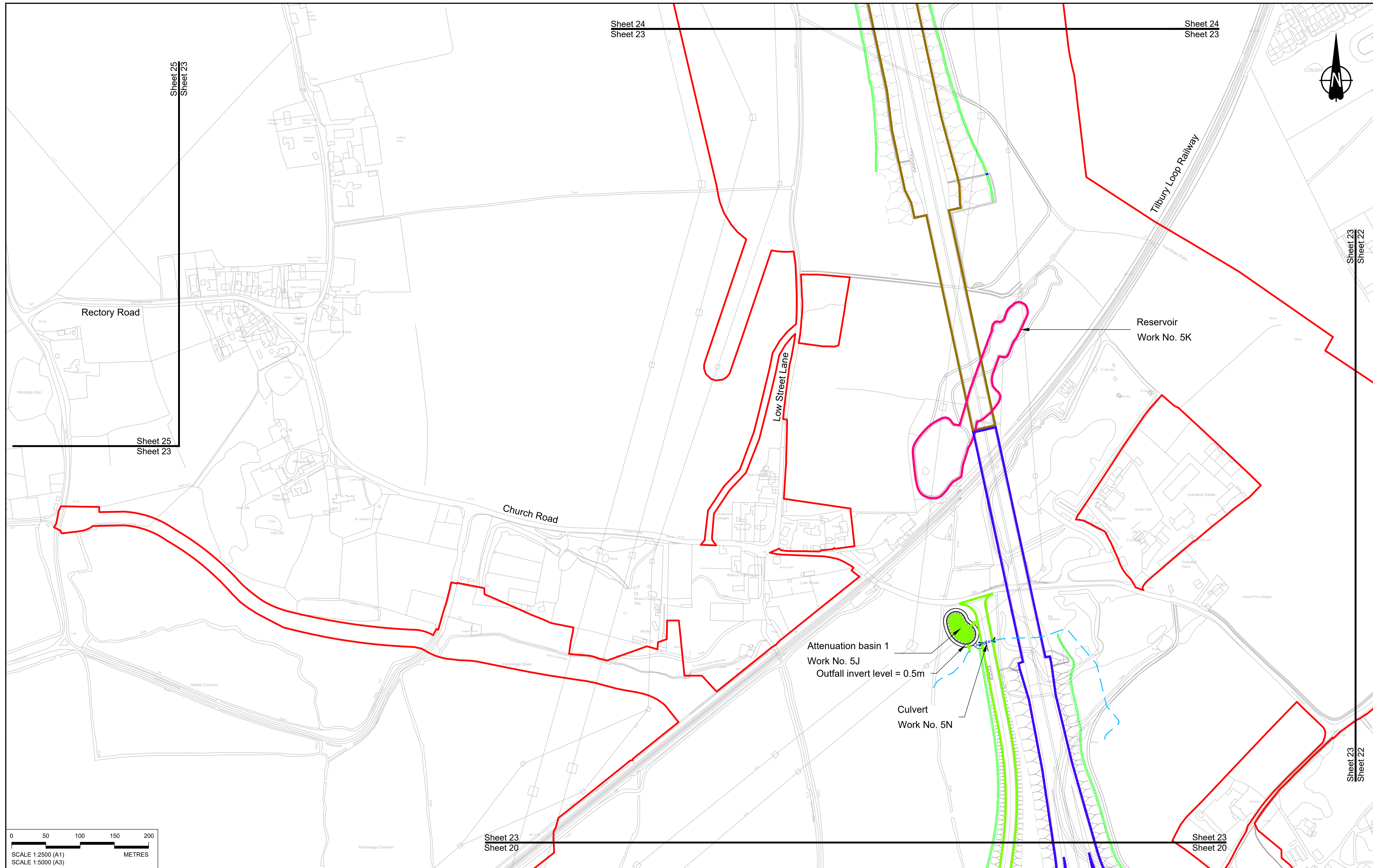
national highways

Client

Project

LOWER THAMES CROSSING

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Drawing Number	HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10019				



Rev	Status	Rev. Date	Purpose of revision	Drawn	Check'd	Appr'd
P01	S8	19/10/2022	DCO Application	LY	BB	ASB
P02	S8	24/08/2023	Deadline 3	LY	BB	ASB
P03	S8	19/09/2023	Deadline 4	MS	RO	ASB

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LEGEND:

BOUNDARIES

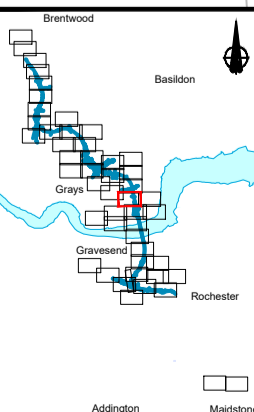
- Order Limits
- Local Authority boundary
- Existing watercourse

PROPOSED DRAINAGE

- Watercourse diversion
- Infiltration basin, attenuation pond, infiltration pond
- Swale
- Ditch
- Culvert or pipe
- Pumping station
- Containment for contaminated water from tunnel low point sump

CATCHMENT AREAS AND OUTFALLS

- Catchment for Work No. 5H and 5I
- Catchment for Work No. 5J
- Outfall to Work No. 5J
- Discharge to existing drainage network or watercourse for Work No. 5J
- Catchment for Work No. 6E
- Reservoir Work No. 5K



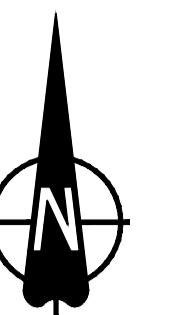
Client: **national highways**

Project: **LOWER THAMES CROSSING**

Status	DCO Examination	Original Size	A1	Revision	P03
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Drawing Number	HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10020				

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Hoford Road

Existing
detention basin
Work No. 6K

Culvert
Work No. 6F

Outfall invert level = 5.6m

Attenuation pond 4
Work No. 6E

Muckingford Road

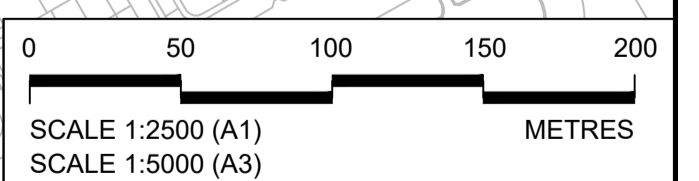
Linford

Culvert
Work No. 6J

Culvert
Work No. 6I

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Rev	Status	Rev. Date	Purpose of revision	Drawn	Check'd	Apprv'd
P01	S8	19/10/2022	DCO Application	LY	BB	ASB
P02	S8	19/09/2023	Deadline 4	MS	RO	ASB

NOTES:

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LEGEND:

BOUNDARIES

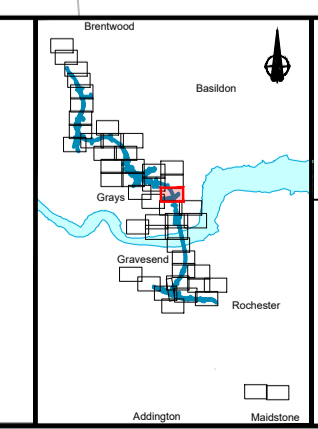
- Order Limits
- Local Authority boundary
- Existing watercourse

PROPOSED DRAINAGE

- Watercourse diversion
- Infiltration basin, attenuation pond, infiltration pond
- Swale
- Ditch
- Culvert or pipe
- P.S. Pumping station
- Containment for contaminated water from tunnel low point sump

CATCHMENT AREAS AND OUTFALLS

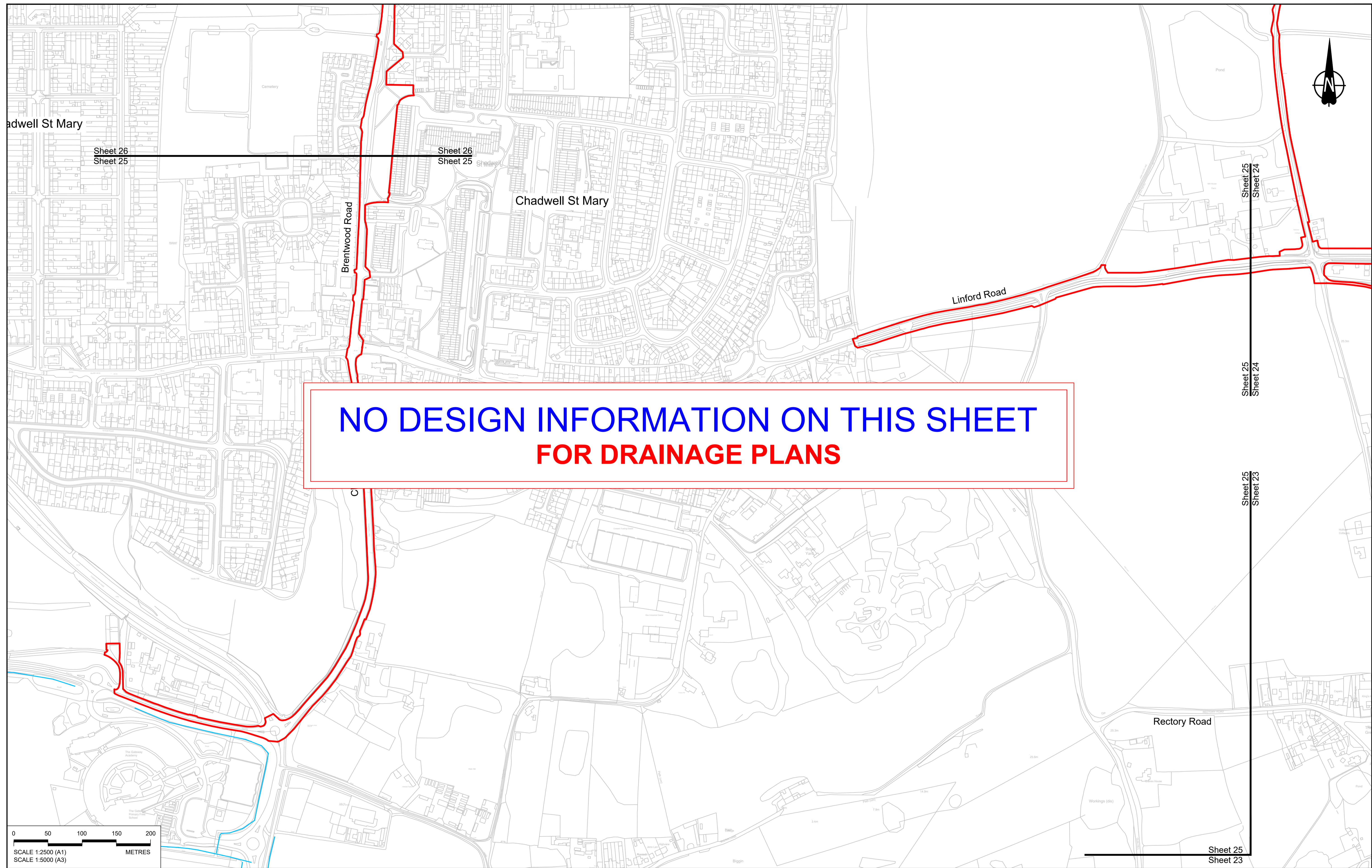
- Catchment for Work No. 6E
- Outfall to Work No. 6E
- Discharge to existing drainage network or watercourse for Work No. 6E



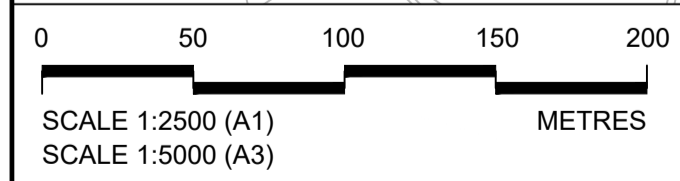
Client
national highways

Project
LOWER THAMES CROSSING

Status	DCO Examination	Original Size	A1	Revision	P02
Application Document Number	TR010032/APP/2.16	Scale	1:2500		
Drawing title	DRAINAGE PLANS REGULATION 5(2)(o) SHEET 24				
Drawing Number	HE540039-CJV-BOP-SZZ_DN100000_DR-CD-10021				



**NO DESIGN INFORMATION ON THIS SHEET
FOR DRAINAGE PLANS**



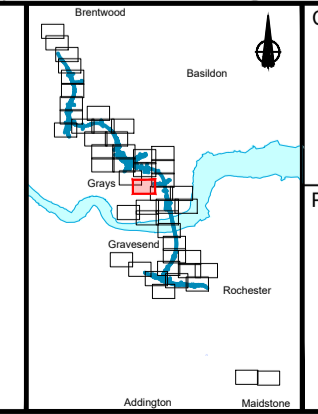
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P01	SB	19/10/2022	DCO Application	LY	BB	ASB
Rev	Status	Rev. Date	Purpose of revision	Drawn	Check'd	Apprv'd

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LEGEND:

BOUNDARIES	PROPOSED DRAINAGE	
Order Limits	Watercourse diversion	Ditch
Local Authority boundary	Infiltration basin, attenuation pond, infiltration pond	Culvert or pipe
Existing watercourse	Swale	P.S. Pumping station
		Containment for contaminated water from tunnel low point sump



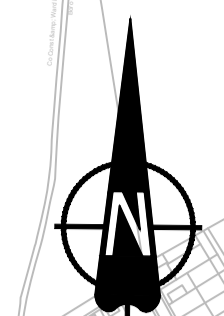
national highways

Project: **LOWER THAMES CROSSING**

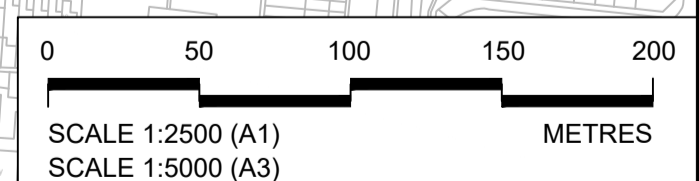
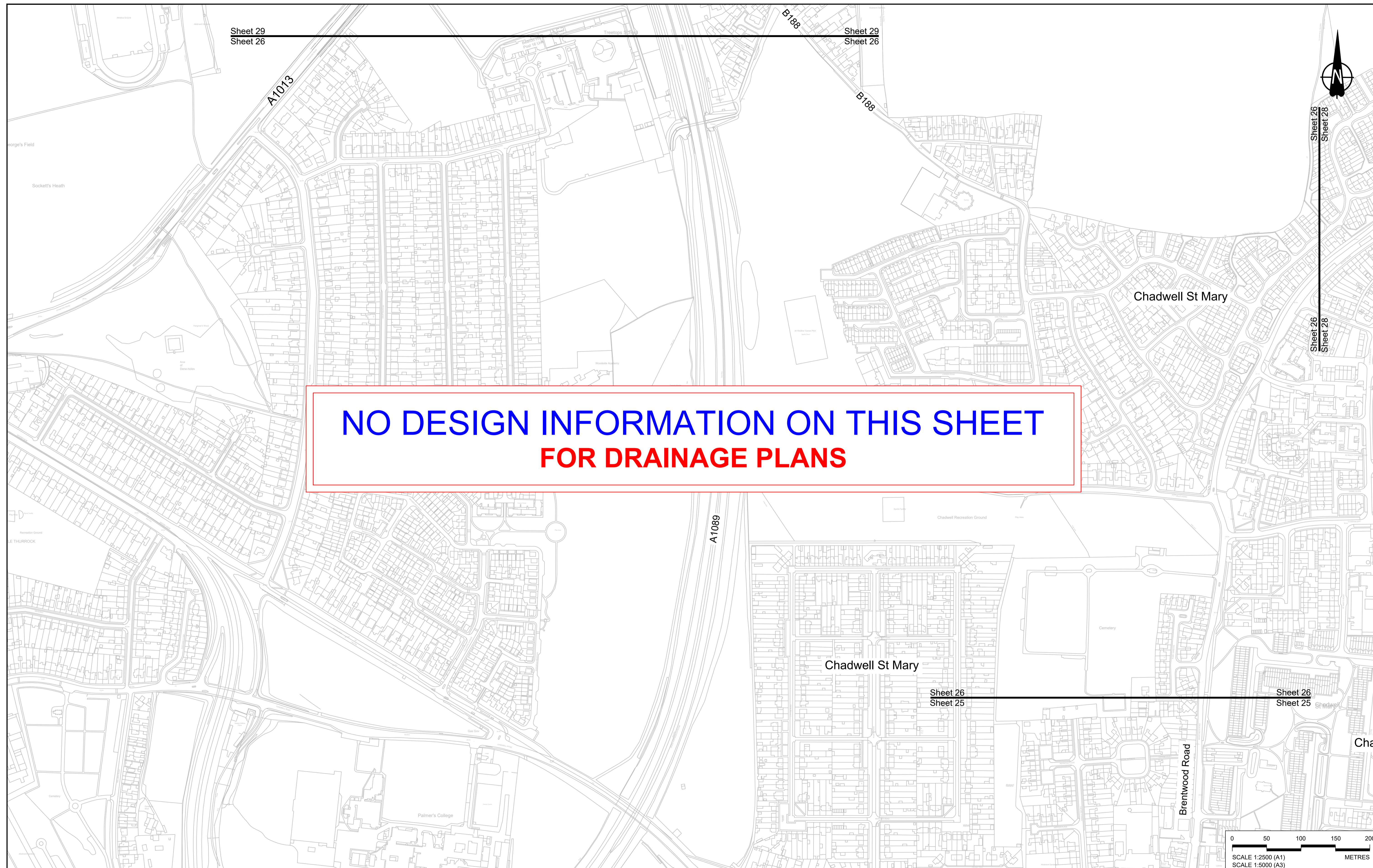
Status	DCO Application	Original Size	Revision
Application Document Number	TR010032/APP/2.16	A1	P01
Drawing title	DRAINAGE PLANS REGULATION 5(2)(o) SHEET 25		
Drawing Number	HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10022		
		Scale	1:2500

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**NO DESIGN INFORMATION ON THIS SHEET
FOR DRAINAGE PLANS**




P01	SB	19/10/2022	DCO Application	LY	BB	ASB
Rev	Status	Rev. Date	Purpose of revision	Drawn	Chck'd	Apprv'd

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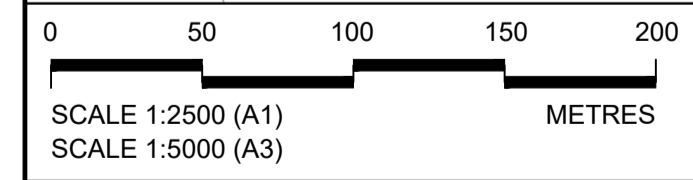
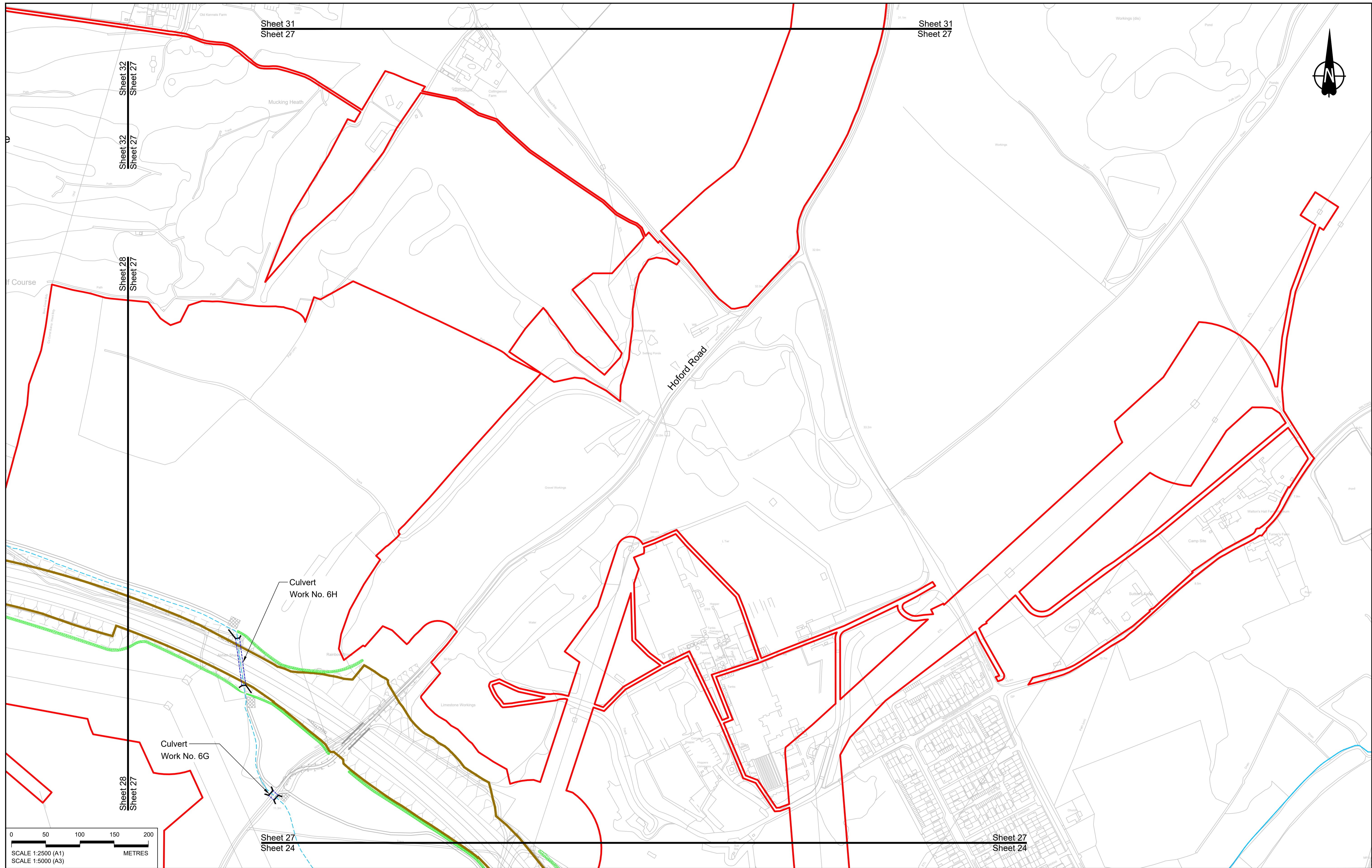
LEGEND:

BOUNDARIES	PROPOSED DRAINAGE	
Order Limits	Watercourse diversion	Ditch
Local Authority boundary	Infiltration basin, attenuation pond, infiltration pond	Culvert or pipe
Existing watercourse	Swale	P.S. Pumping station
		Containment for contaminated water from tunnel low point sump



LOWER THAMES CROSSING

Status	DCO Application	Original Size	Revision
Application Document Number	TR010032/APP/2.16	A1	P01
Drawing title	DRAINAGE PLANS REGULATION 5(2)(o) SHEET 26		
Drawing Number	HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10023		
		Scale	1:2500



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P01	SB	19/10/2022	DCO Application	LY	BB	ASB
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LEGEND:

BOUNDARIES

- Order Limits
- Local Authority boundary
- Existing watercourse

PROPOSED DRAINAGE

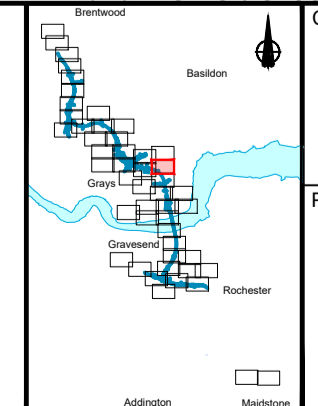
- Watercourse diversion
- Infiltration basin, attenuation pond, infiltration pond
- Swale

CATCHMENT AREAS AND OUTFALLS

- Ditch
- Culvert or pipe
- P.s.
- Pumping station
- Containment for contaminated water from tunnel low point sump

CATCHMENT AREAS AND OUTFALLS

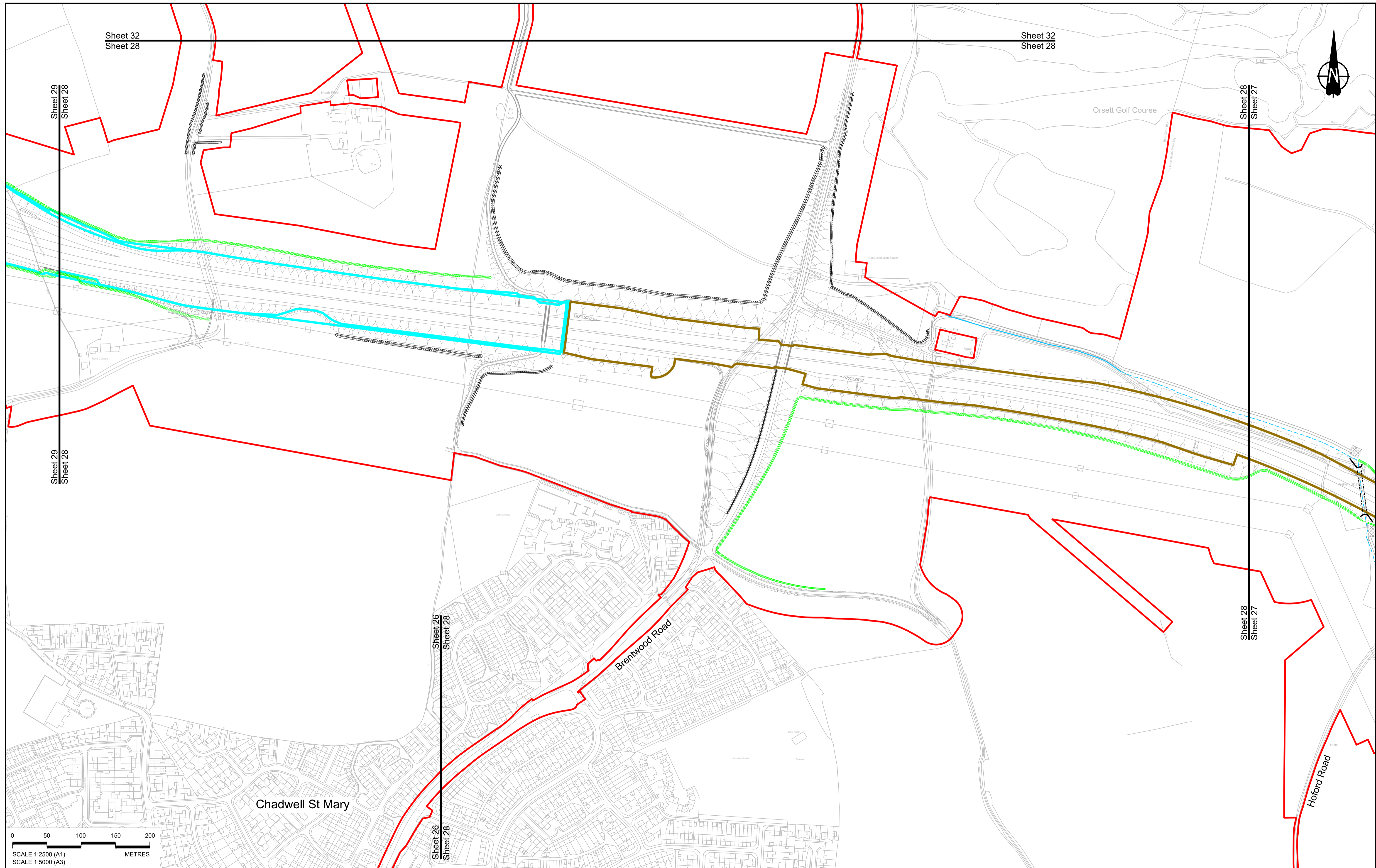
- Catchment for Work No. 6E



Client: **national highways**

Project: **LOWER THAMES CROSSING**

Status	DCO Application	Original Size	Revision
Application Document Number	TR010032/APP/2.16	A1	P01
Drawing title	DRAINAGE PLANS REGULATION 5(2)(o) SHEET 27		
Drawing Number	HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10024		
		Scale	1:2500



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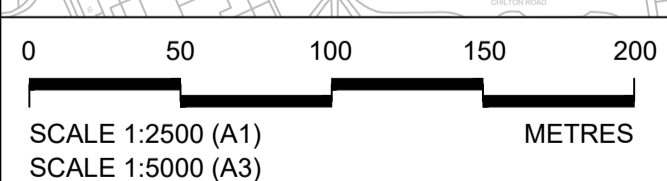
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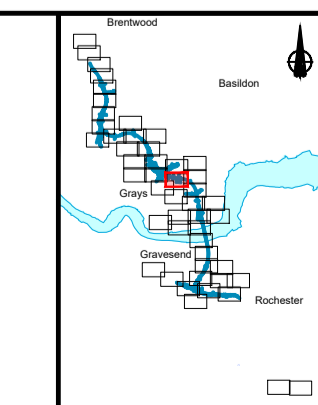
Sheet 28
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NOTES:
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 3. Where proposed catchment areas boundaries overlap with each other or the Order Limits they are shown adjacent to each other or the Order Limit to provide greater visual clarity but these could extend to the boundary of other catchment areas or the Order Limits as well.

BOUNDARIES		PROPOSED DRAINAGE		CATCHMENT AREAS AND OUTFALLS	
	Order Limits		Watercourse diversion		Catchment for Work No. 6E
	Local Authority boundary		Infiltration basin, attenuation pond, infiltration pond		Catchment for Work No. 8F
	Existing watercourse		Swale		Ditch
					Culvert or pipe
					P.s. Pumping station
					Containment for contaminated water from tunnel low point sump

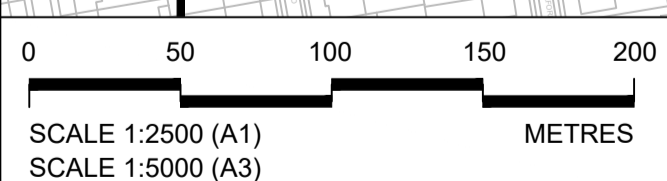
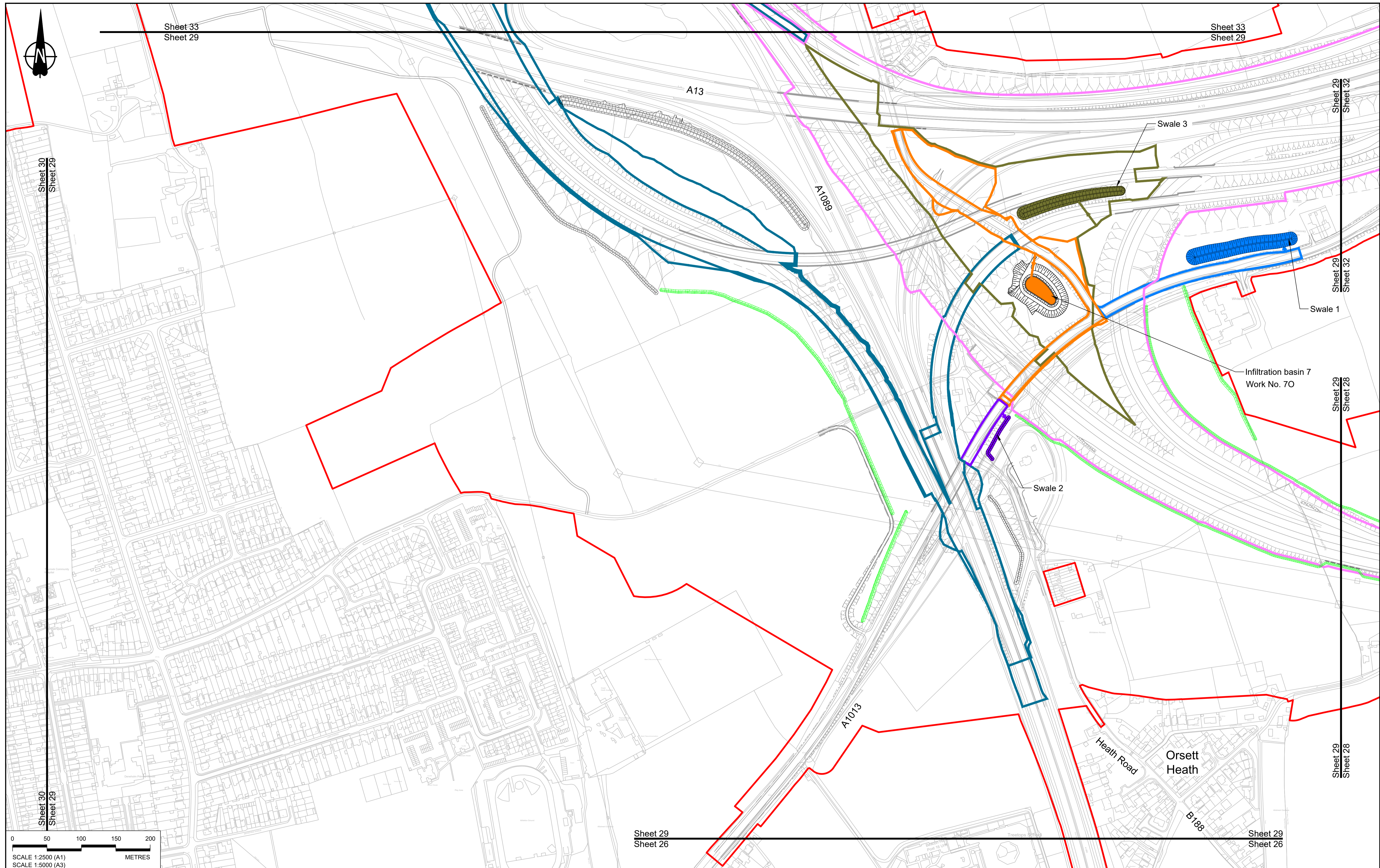
Rev	Status	Rev. Date	Purpose of revision	Drawn	Chk'd	Apprv'd
P01	SB	19/10/2022	DCO Application	LY	BB	ASB



Client: **national highways**

Project: **LOWER THAMES CROSSING**

Status	DCO Application	Original Size	A1	Revision	P01
Application Document Number	TR010032/APP/2.16	Scale	1:2500		
Drawing title	DRAINAGE PLANS REGULATION 5(2)(o) SHEET 28				
Drawing Number	HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10025				



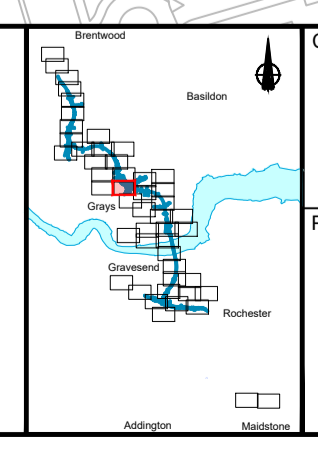
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P01	SB	19/10/2022	DCO Application	LY	BB	ASB
Rev	Status	Rev. Date	Purpose of revision	Drawn	Chck'd	Apprv'd

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BOUNDARIES		PROPOSED DRAINAGE		CATCHMENT AREAS AND OUTFALLS	
	Order Limits		Watercourse diversion		Catchment for Work No. 8F
	Local Authority boundary		Infiltration basin, attenuation pond, infiltration pond		Catchment for Work No. 8E
	Existing watercourse		Swale		Catchment for Work No. 70
			Ditch		Outfall to Swale 1
			Culvert or pipe		Outfall to Swale 2
			P.S.		Catchment for Swale 2
			Containment for contaminated water from tunnel low point sump		Outfall to Swale 3
					Catchment for Swale 3



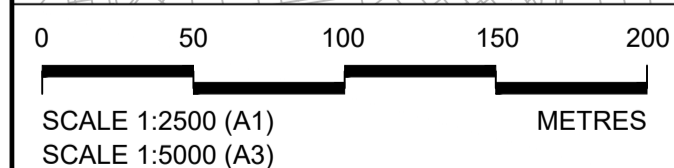
Client: **national highways**

Project: **LOWER THAMES CROSSING**

Status	DCO Application	Original Size	Revision
Application Document Number	TR010032/APP/2.16	A1	P01
Drawing title	DRAINAGE PLANS REGULATION 5(2)(o) SHEET 29		
Drawing Number	HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10026		
		Scale	1:2500



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FOR DRAINAGE PLANS**



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P01	SB	19/10/2022	DCO Application	LY	BB	ASB
Rev	Status	Rev. Date	Purpose of revision	Drawn	Chk'd	Apprv'd

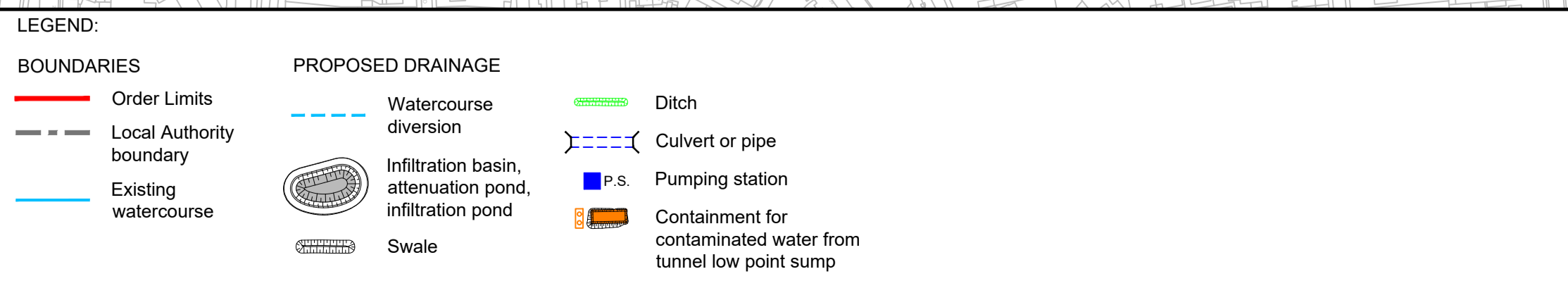
LEGEND:

BOUNDARIES

- Order Limits
- Local Authority boundary
- Existing watercourse

PROPOSED DRAINAGE

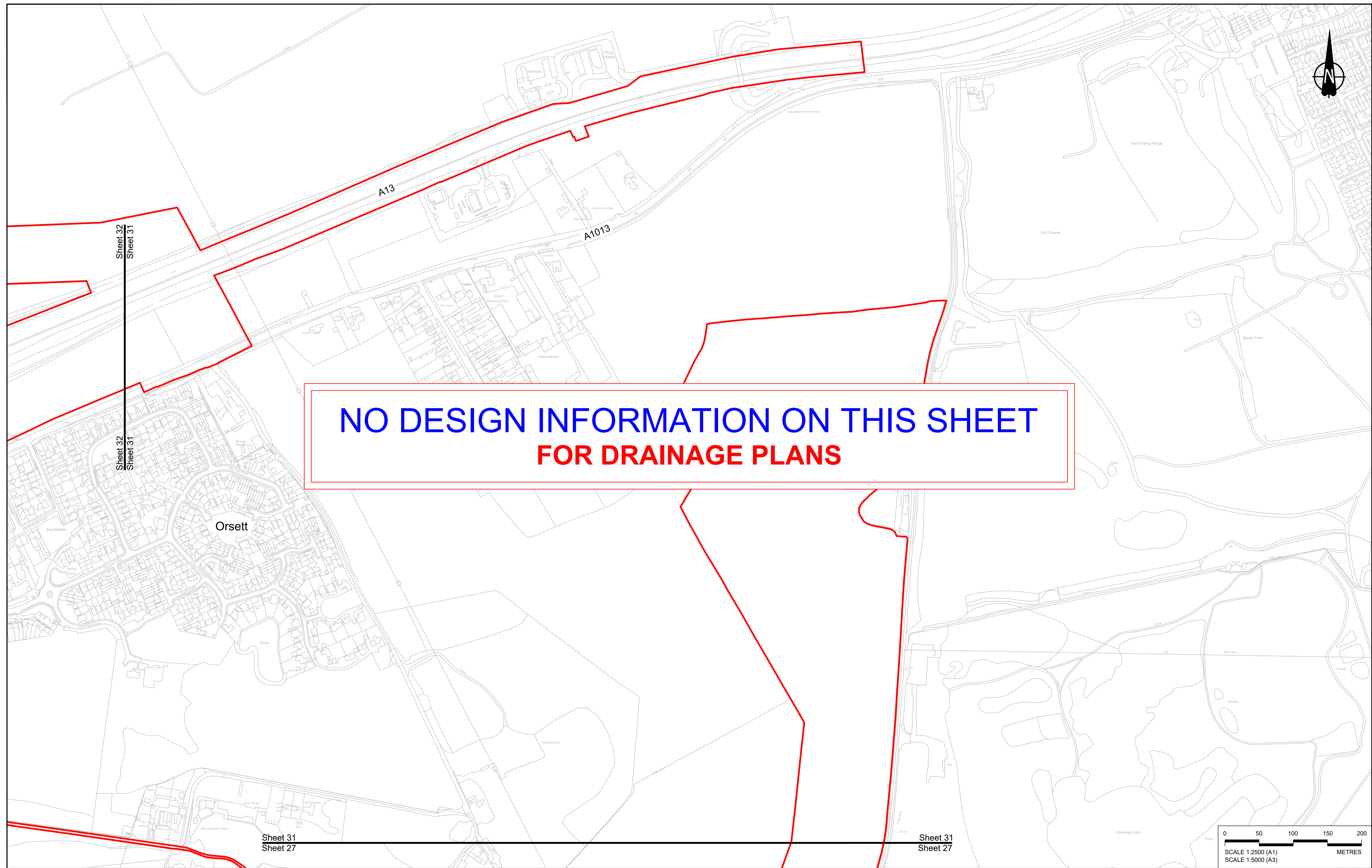
- Watercourse diversion
- Infiltration basin, attenuation pond, infiltration pond
- Swale
- Ditch
- Culvert or pipe
- P.S. Pumping station
- Containment for contaminated water from tunnel low point sump



Client: **national highways**

Project: **LOWER THAMES CROSSING**

Status	DCO Application	Original Size	Revision
Application Document Number	TR010032/APP/2.16	A1	P01
Drawing title	DRAINAGE PLANS REGULATION 5(2)(o) SHEET 30		
Drawing Number	HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10027		
		Scale	1:2500



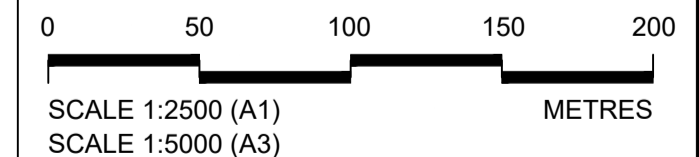
**NO DESIGN INFORMATION ON THIS SHEET
FOR DRAINAGE PLANS**

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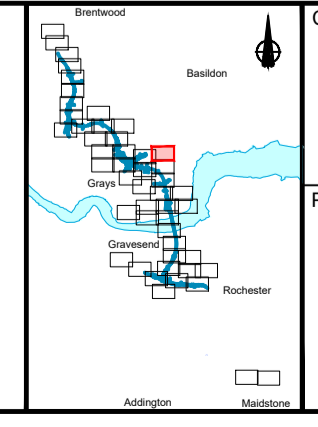
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P01	SB	19/10/2022	DCO Application	LY	BB	ASB
Rev	Status	Rev. Date	Purpose of revision	Drawn	Chck'd	Apprv'd

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LEGEND:

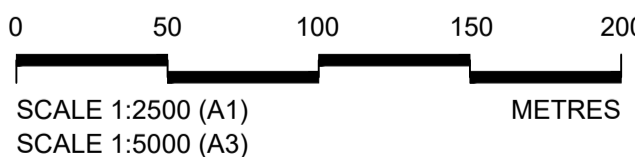
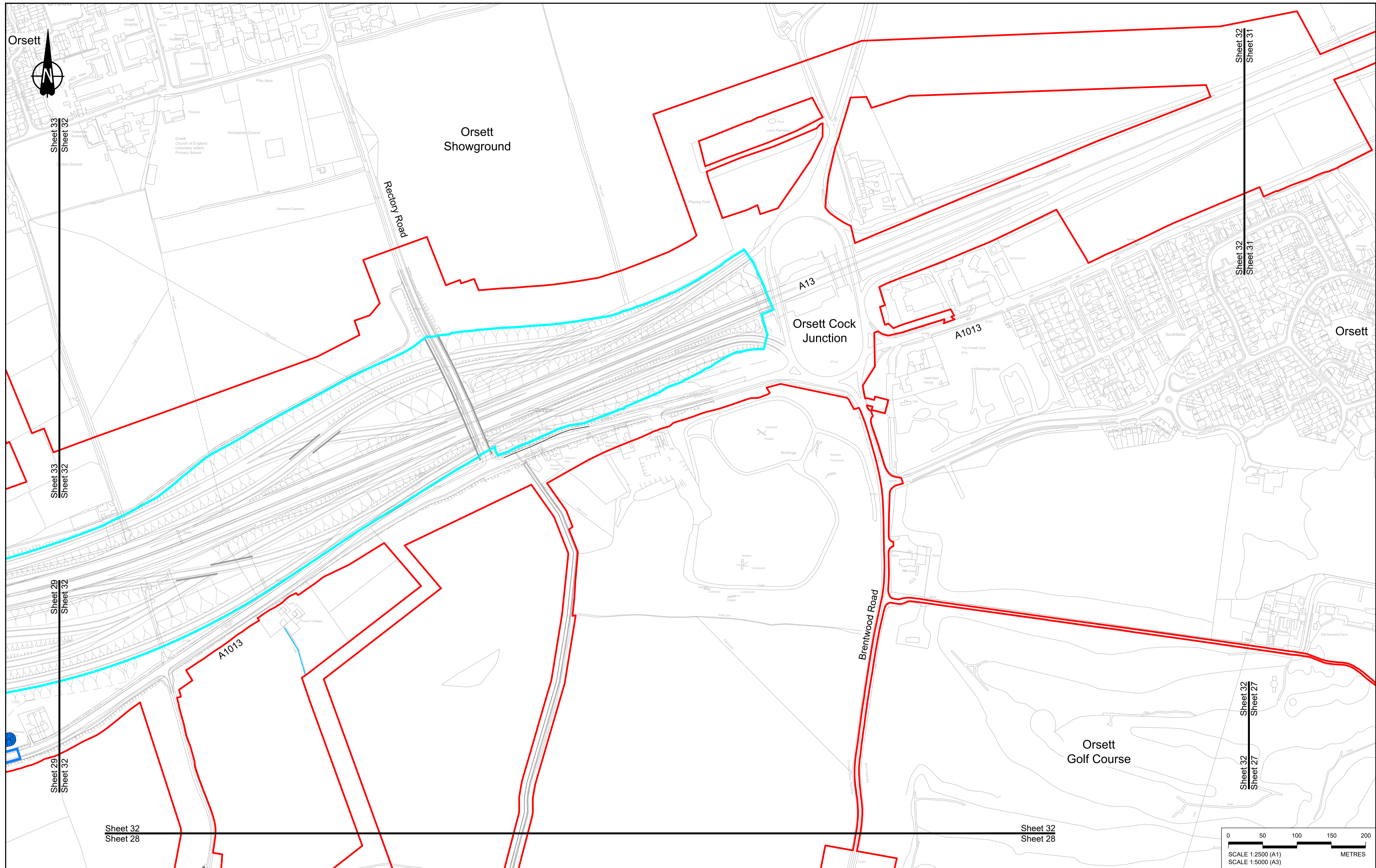
BOUNDARIES	PROPOSED DRAINAGE	
Order Limits	Watercourse diversion	Ditch
Local Authority boundary	Infiltration basin, attenuation pond, infiltration pond	Culvert or pipe
Existing watercourse	Swale	P.S. Pumping station
		Containment for contaminated water from tunnel low point sump



national highways

Project: **LOWER THAMES CROSSING**

Status	DCO Application	Original Size	Revision
Application Document Number	TR010032/APP/2.16	A1	P01
Drawing title	DRAINAGE PLANS REGULATION 5(2)(o) SHEET 31		
Drawing Number	HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10028		
		Scale	1:2500



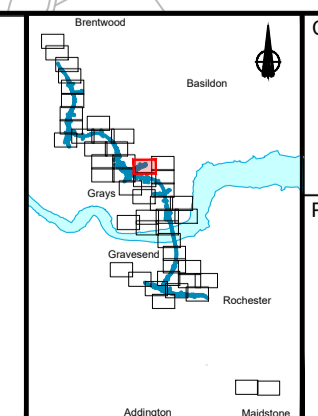
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P01	SB	19/10/2022	DCO Application	LY	BB	ASB
Rev	Status	Rev. Date	Purpose of revision	Drawn	Chck'd	Apprv'd

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LEGEND:

BOUNDARIES	PROPOSED DRAINAGE	CATCHMENT AREAS AND OUTFALLS
— Order Limits	--- Watercourse diversion	— Catchment for Work No. 8F
- - - Local Authority boundary	— Infiltration basin, attenuation pond, infiltration pond	
— Existing watercourse	— Swale	
	— Ditch	
	— Culvert or pipe	
	— P.S. Pumping station	
	— Containment for contaminated water from tunnel low point sump	

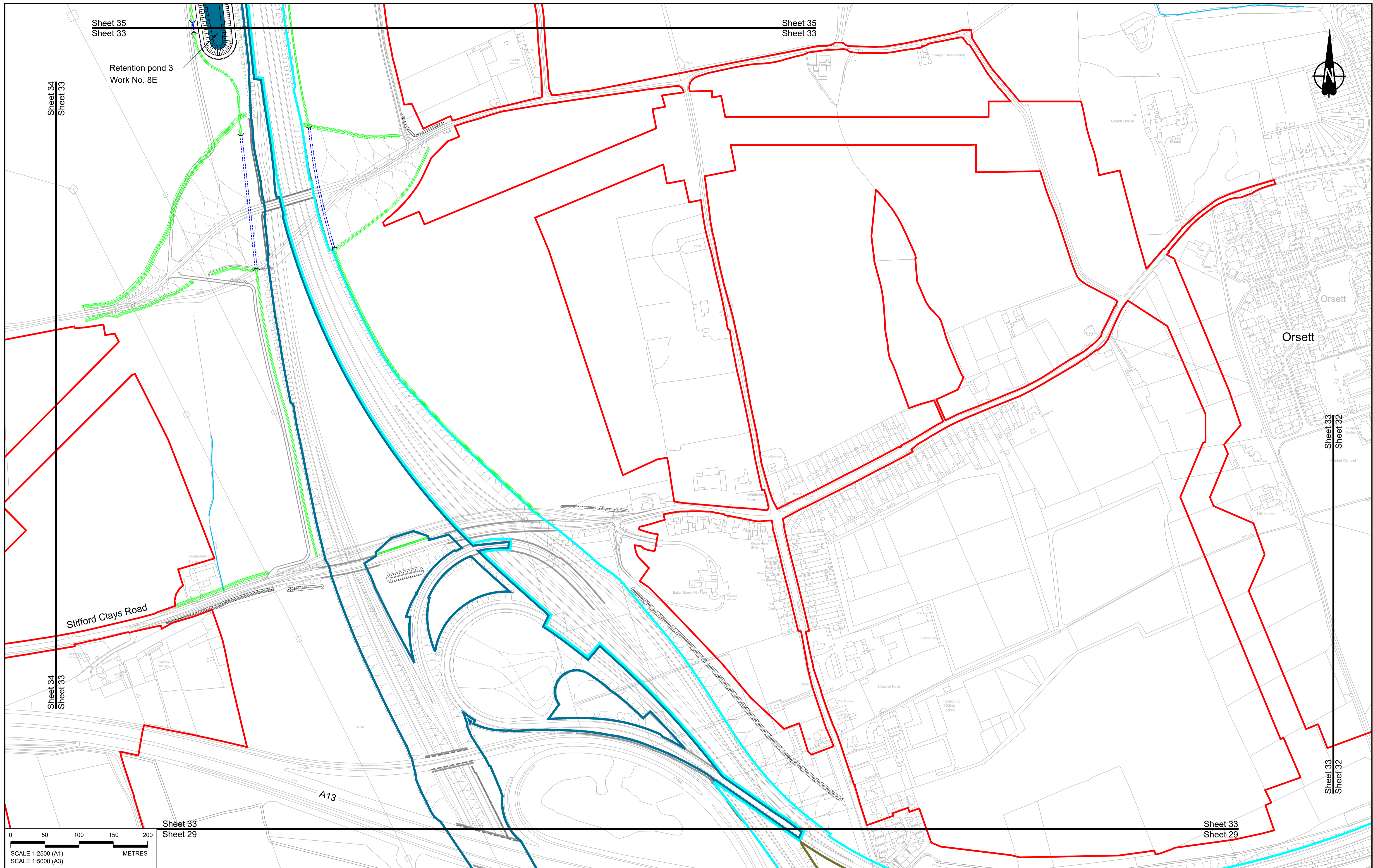


Client: **national highways**

Project: **LOWER THAMES CROSSING**

Status	DCO Application	Original Size	Revision
Application Document Number	TR010032/APP/2.16	A1	P01
Drawing title	DRAINAGE PLANS REGULATION 5(2)(o) SHEET 32		
Drawing Number	HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10029		

Scale: 1:2500



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Retention pond 3
Work No. 8E

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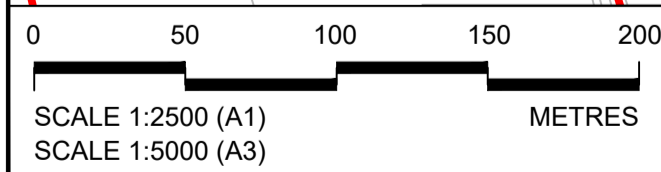
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Stifford Clays Road

A13

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Rev	Status	Rev. Date	Purpose of revision	Drawn	Check'd/ Apprv'd
P01	S8	19/10/2022	DCO Application	LY	BB ASB

NOTES:
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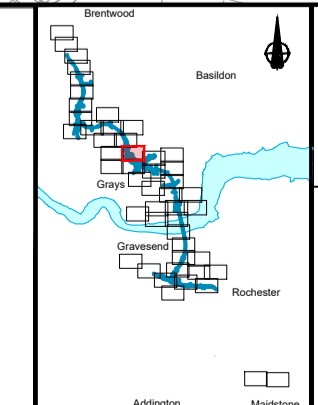
LEGEND:

BOUNDARIES
 — Order Limits
 - - - Local Authority boundary
 — Existing watercourse

PROPOSED DRAINAGE
 - - - Watercourse diversion
 [Symbol] Infiltration basin, attenuation pond, infiltration pond
 [Symbol] Swale

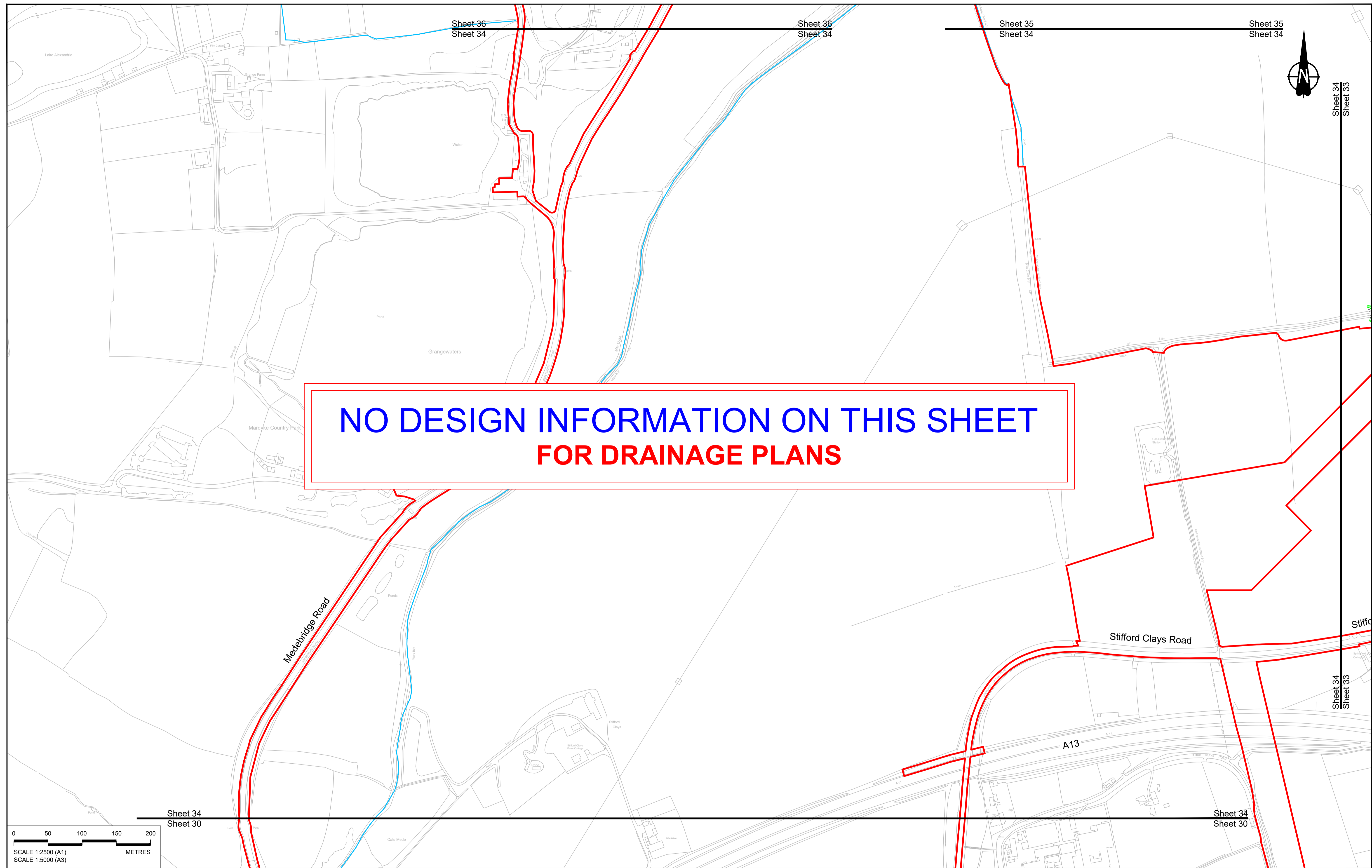
[Symbol] Ditch
 [Symbol] Culvert or pipe
 [Symbol] P.S. Pumping station
 [Symbol] Containment for contaminated water from tunnel low point sump

CATCHMENT AREAS AND OUTFALLS
 [Symbol] Catchment for Work No. 8F
 [Symbol] Catchment for Work No. 8E

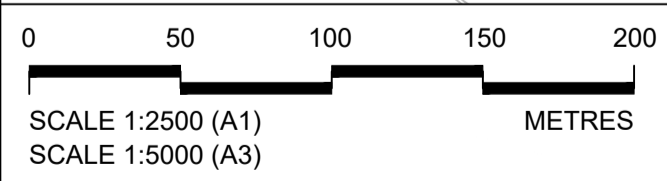


Client
 national highways
 Project
LOWER THAMES CROSSING

Status	DCO Application	Original Size	A1	Revision	P01
Application Document Number	TR010032/APP/2.16	Scale	1:2500		
Drawing title	DRAINAGE PLANS REGULATION 5(2)(o) SHEET 33				
Drawing Number	HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10030				



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P01	SB	19/10/2022	DCO Application	LY	BB	ASB
Rev	Status	Rev. Date	Purpose of revision	Drawn	Chck'd	Apprv'd

NOTES:

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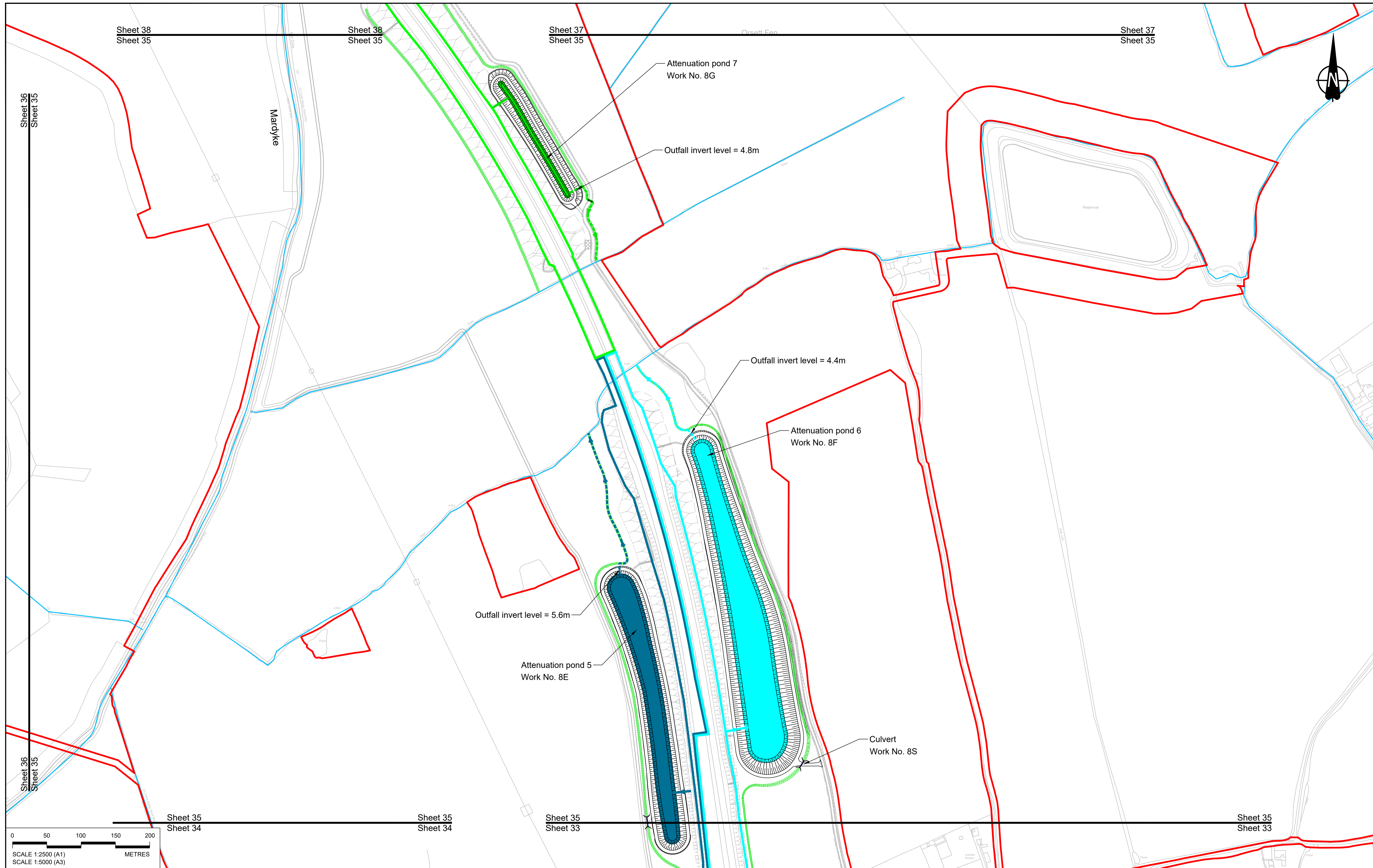
BOUNDARIES		PROPOSED DRAINAGE	
Order Limits	Local Authority boundary	Watercourse diversion	Ditch
Existing watercourse	P.S.	Infiltration basin, attenuation pond, infiltration pond	Pumping station
		Swale	Containment for contaminated water from tunnel low point sump

Client
national highways

Project
LOWER THAMES CROSSING

Status	DCO Application	Original Size	Revision
Application Document Number	TR010032/APP/2.16	A1	P01
Drawing title	DRAINAGE PLANS REGULATION 5(2)(o) SHEET 34		
Drawing Number	HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10031		

Scale	1:2500
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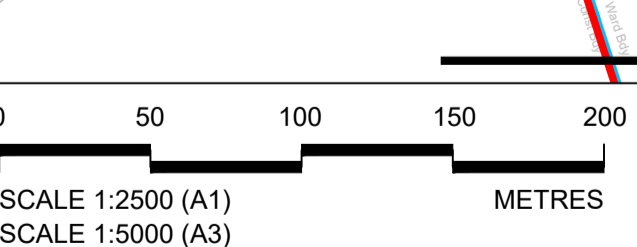
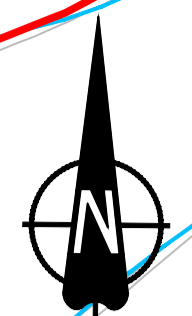
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P01	SB	19/10/2022	DCO Application	LY	BB	ASB
Rev	Status	Rev. Date	Purpose of revision	Drawn	Chck'd	Apprv'd

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LEGEND:

BOUNDARIES

- Order Limits
- Local Authority boundary
- Existing watercourse

PROPOSED DRAINAGE

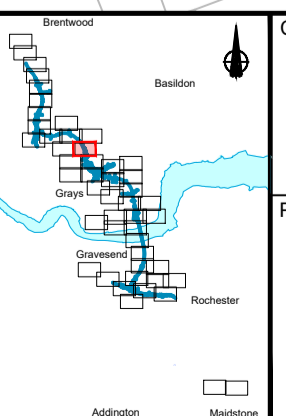
- Watercourse diversion
- Infiltration basin, attenuation pond, infiltration pond
- Swale

- Ditch
- Culvert or pipe
- Pumping station
- Containment for contaminated water from tunnel low point sump

CATCHMENT AREAS AND OUTFALLS

- Catchment for Work No. 8F
- Outfall to Work No. 8F
- Discharge to existing drainage network or watercourse for Work No. 8F
- Catchment for Work No. 8E
- Outfall to Work No. 8E

- Discharge to existing drainage network or watercourse for Work No. 8E
- Catchment for Work No. 8G
- Outfall to Work No. 8G
- Discharge to existing drainage network or watercourse for Work No. 8G



Client: **national highways**

Project: **LOWER THAMES CROSSING**

Status	DCO Application		Original Size	Revision
Application Document Number	TR010032/APP/2.16		A1	P01
Drawing title	DRAINAGE PLANS REGULATION 5(2)(o) SHEET 35		Scale	1:2500
Drawing Number	HE540039-CJV-BOP-SZZ_DN100000 -DR-CD-10032			

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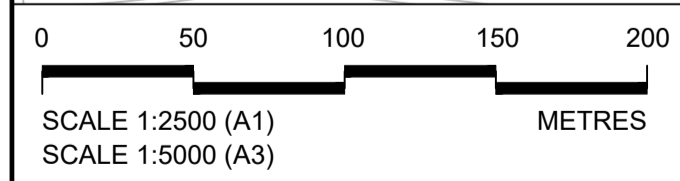
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P01	SB	19/10/2022	DCO Application	LY	BB	ASB
Rev	Status	Rev. Date	Purpose of revision	Drawn	Check'd	Apprv'd

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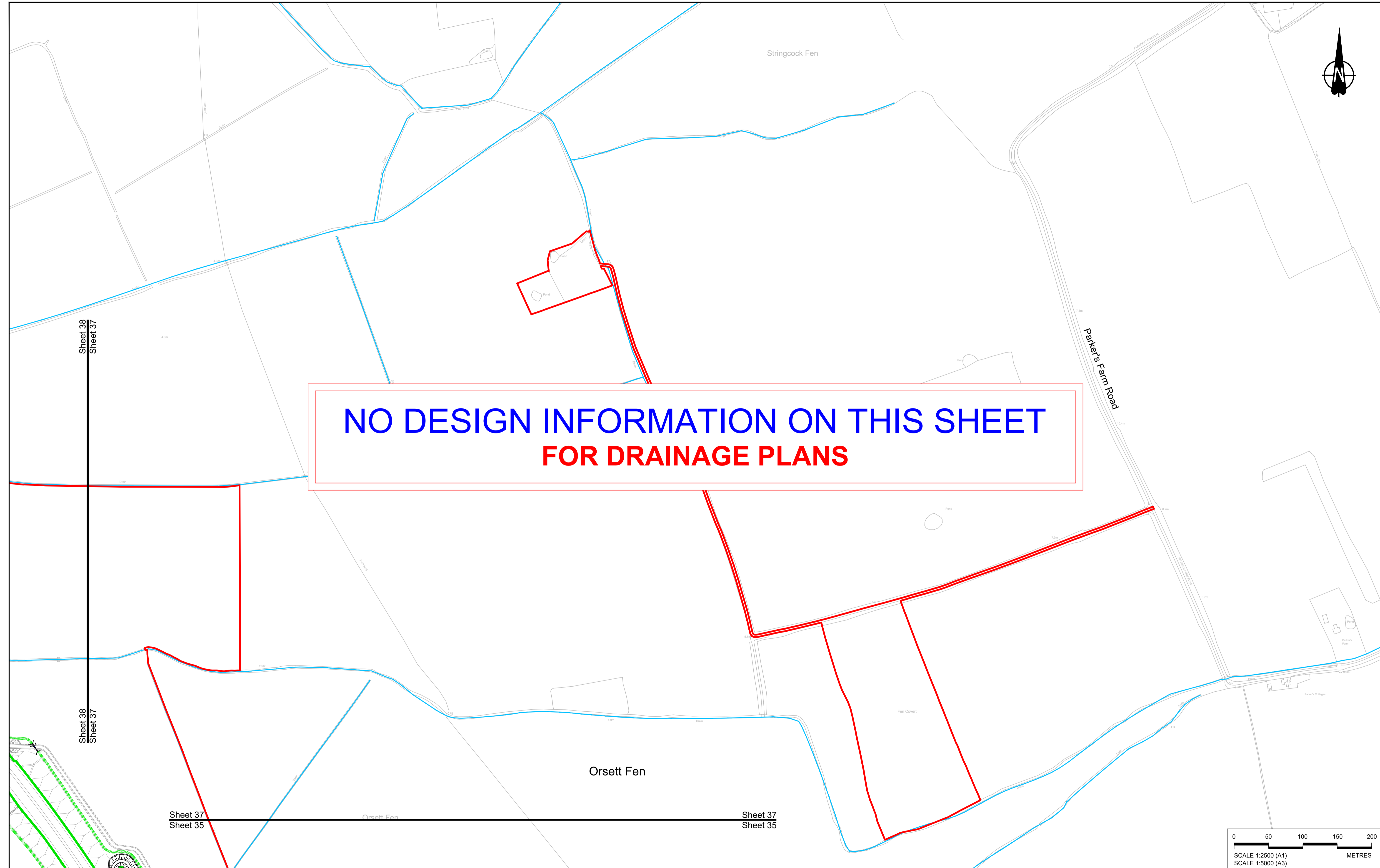
LEGEND:

BOUNDARIES	PROPOSED DRAINAGE	
Order Limits	Watercourse diversion	Ditch
Local Authority boundary	Infiltration basin, attenuation pond, infiltration pond	Culvert or pipe
Existing watercourse	Swale	P.S. Pumping station
		Containment for contaminated water from tunnel low point sump

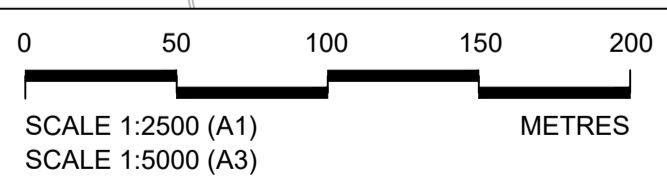
Client: **national highways**

Project: **LOWER THAMES CROSSING**

Status	DCO Application	Original Size	Revision
Application Document Number	TR010032/APP/2.16	A1	P01
Drawing title	DRAINAGE PLANS REGULATION 5(2)(o) SHEET 36		
Drawing Number	HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10033		
		Scale	1:2500



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FOR DRAINAGE PLANS**



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Rev	Status	Rev. Date	Purpose of revision	Drawn	Chkd	Apprvd
P01	S8	19/10/2022	DCO Application	LY	BB	ASB

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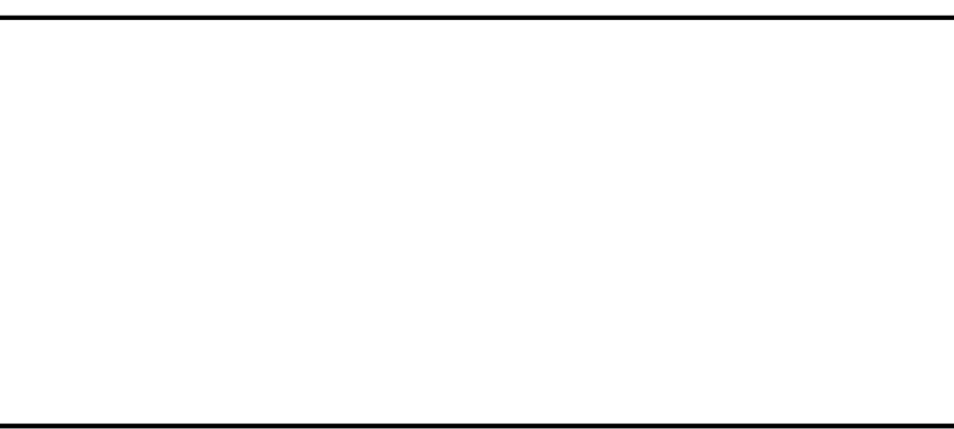
LEGEND:

BOUNDARIES

- Order Limits
- Local Authority boundary
- Existing watercourse

PROPOSED DRAINAGE

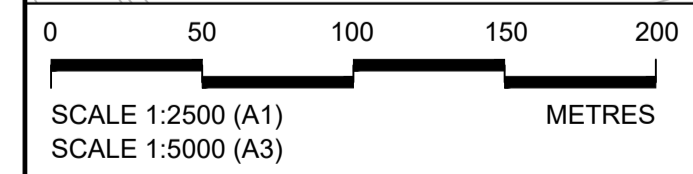
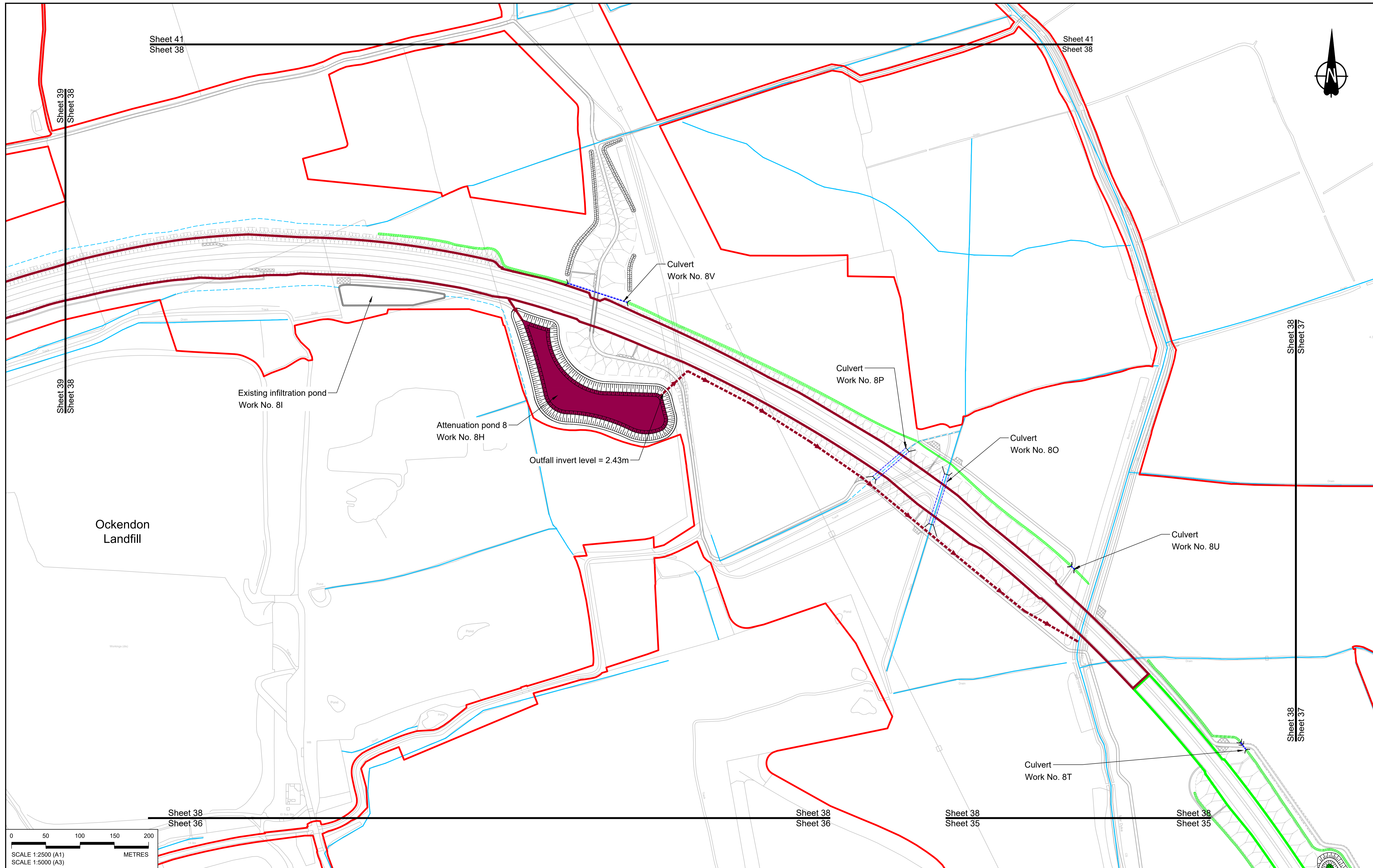
- Watercourse diversion
- Infiltration basin, attenuation pond, infiltration pond
- Swale
- Ditch
- Culvert or pipe
- P.S. Pumping station
- Containment for contaminated water from tunnel low point sump



Client: **national highways**

Project: **LOWER THAMES CROSSING**

Status	DCO Application	Original Size	A1	Revision	P01
Application Document Number	TR010032/APP/2.16	Scale	1:2500		
Drawing title	DRAINAGE PLANS REGULATION 5(2)(o) SHEET 37				
Drawing Number	HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10034				



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P01	SB	19/10/2022	DCO Application	LY	BB	ASB
Rev	Status	Rev. Date	Purpose of revision	Drawn	Chck'd	Apprv'd

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LEGEND:

BOUNDARIES

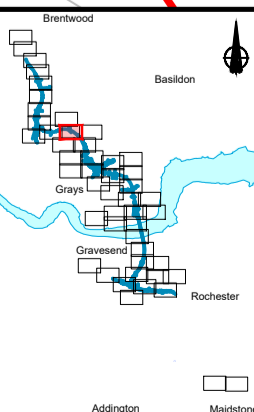
- Order Limits
- Local Authority boundary
- Existing watercourse

PROPOSED DRAINAGE

- Watercourse diversion
- Infiltration basin, attenuation pond, infiltration pond
- Swale
- Ditch
- Culvert or pipe
- P.S. Pumping station
- Containment for contaminated water from tunnel low point sump

CATCHMENT AREAS AND OUTFALLS

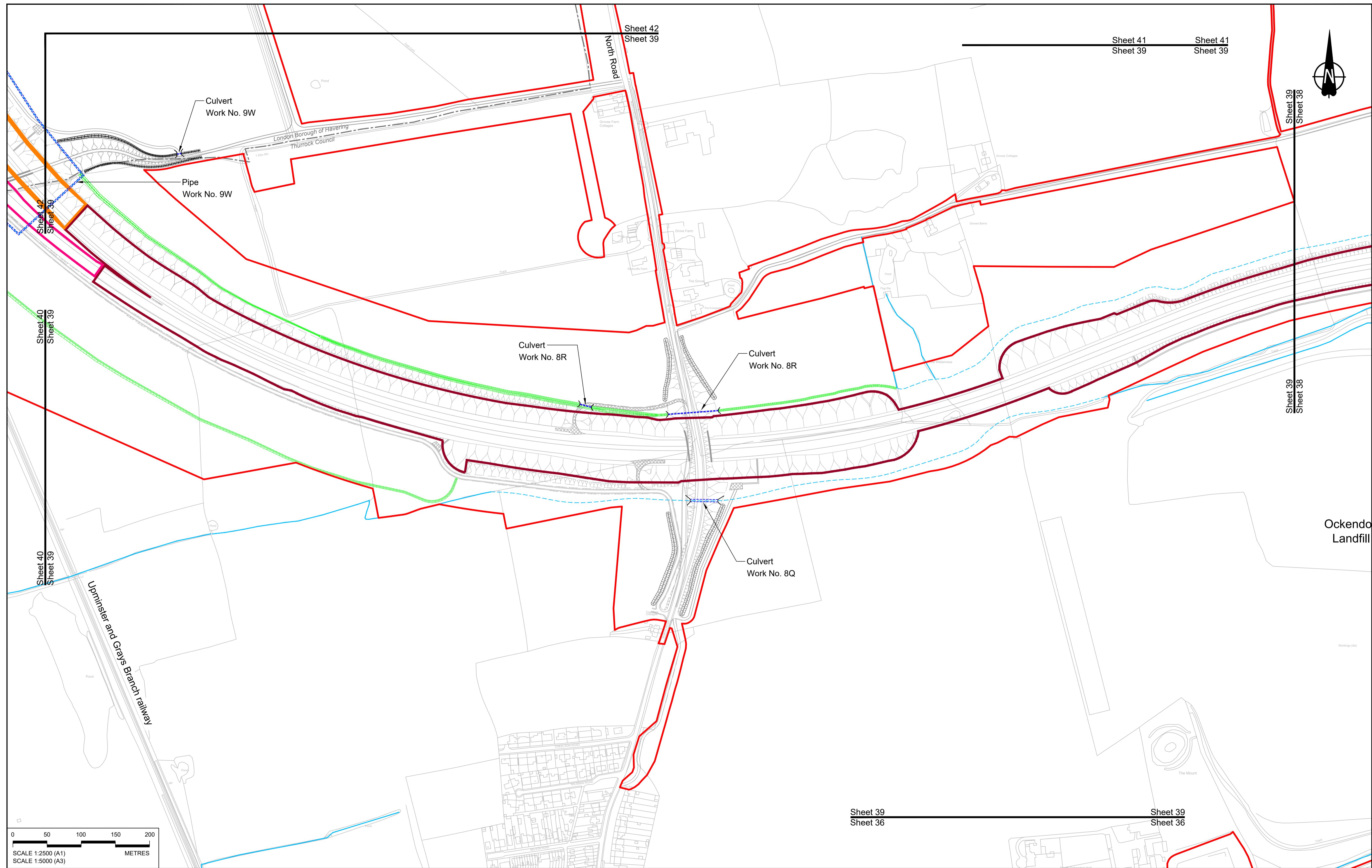
- Catchment for Work No. 8G
- Catchment for Work No. 8H
- Outfall to Work No. 8H
- Discharge to existing drainage network or watercourse for Work No. 8H



Client: **national highways**

Project: **LOWER THAMES CROSSING**

Status	DCO Application	Original Size	Revision
Application Document Number	TR010032/APP/2.16	A1	P01
Drawing title	DRAINAGE PLANS REGULATION 5(2)(o) SHEET 38		
Drawing Number	HE540039-CJV-BOP-SZZ_DN100000 -DR-CD-10035		
		Scale	1:2500



0 50 100 150 200 METRES

SCALE 1:2500 (A1)
SCALE 1:5000 (A3)

P01	SB	19/10/2022	DCO Application	LY	BB	ASB
Rev	Status	Rev. Date	Purpose of revision	Drawn	Chck'd	Apprv'd

NOTES:

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- Where proposed catchment areas boundaries overlap with each other or the Order Limits they are shown adjacent to each other or the Order Limit to provide greater visual clarity but these could extend to the boundary of other catchment areas or the Order Limits as well.

LEGEND:

BOUNDARIES

- Order Limits
- Local Authority boundary
- Existing watercourse

PROPOSED DRAINAGE

- Watercourse diversion
- Infiltration basin, attenuation pond, infiltration pond
- Swale
- Ditch
- Culvert or pipe
- P.s.
- Pumping station
- Containment for contaminated water from tunnel low point sump

CATCHMENT AREAS AND OUTFALLS

- Catchment for Work No. 8H
- Catchment for Work No. 9Q
- Catchment for Work No. 9R

Client: **national highways**

Project: **LOWER THAMES CROSSING**

Status: **DCO Application**

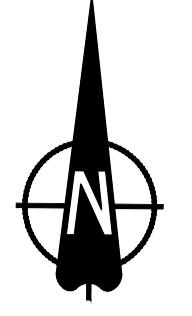
Application Document Number: **TR010032/APP/2.16**

Drawing title: **DRAINAGE PLANS REGULATION 5(2)(o) SHEET 39**

Drawing Number: **HE540039-CJV-BOP-SZZ_DN100000 -DR-CD-10036**

Original Size: **A1** | Revision: **P01**

Scale: **1:2500**

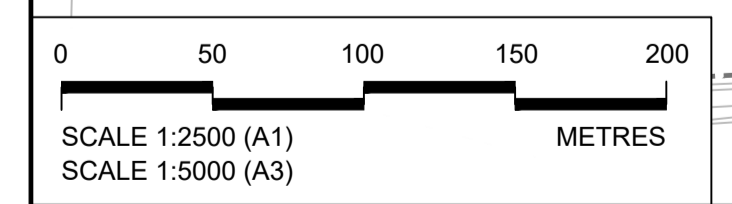
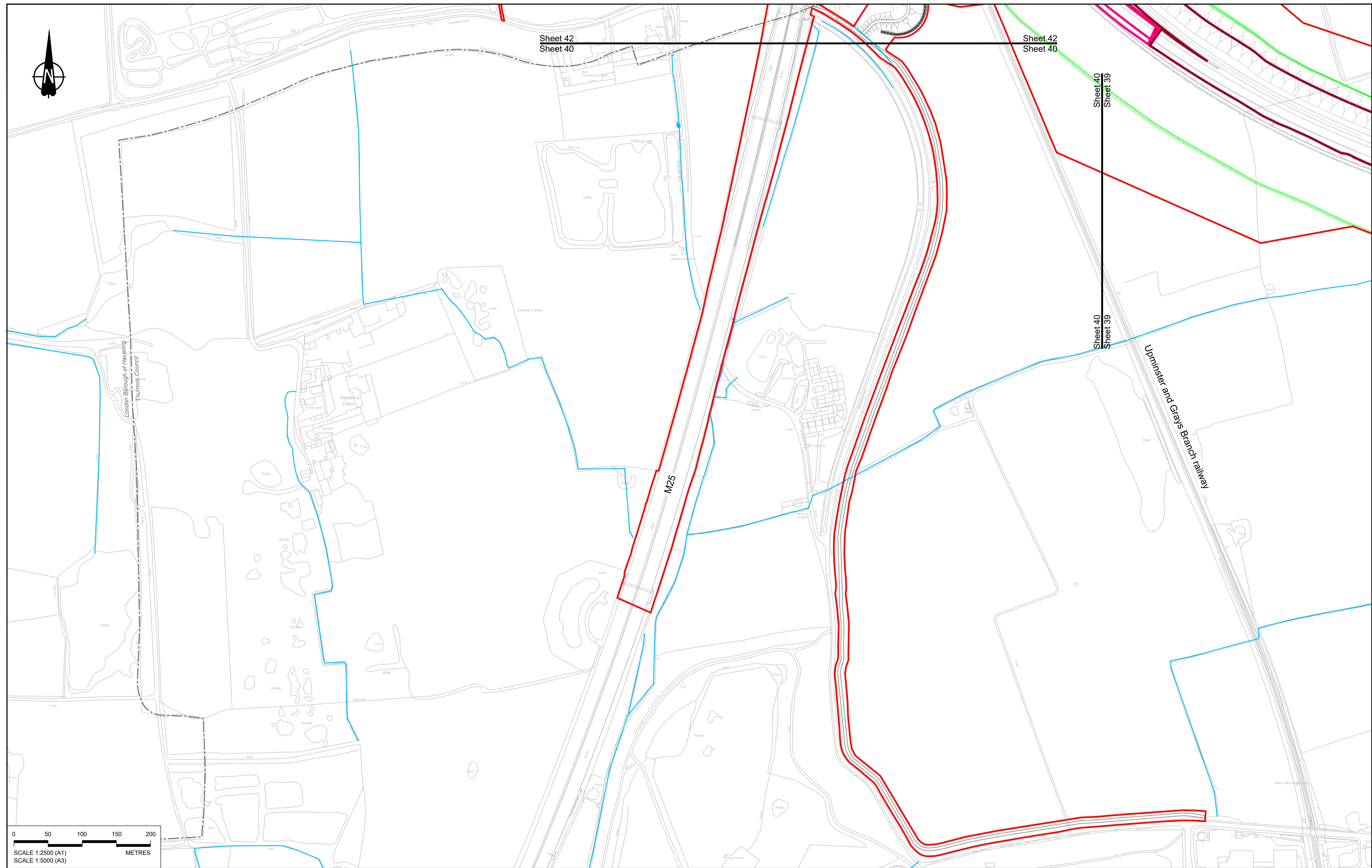


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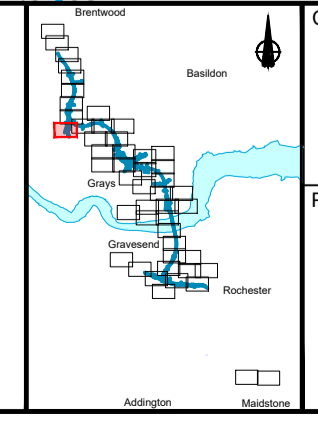
P01	SB	19/10/2022	DCO Application	LY	BB	ASB
Rev	Status	Rev. Date	Purpose of revision	Drawn	Check'd	Apprv'd

NOTES:

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LEGEND:

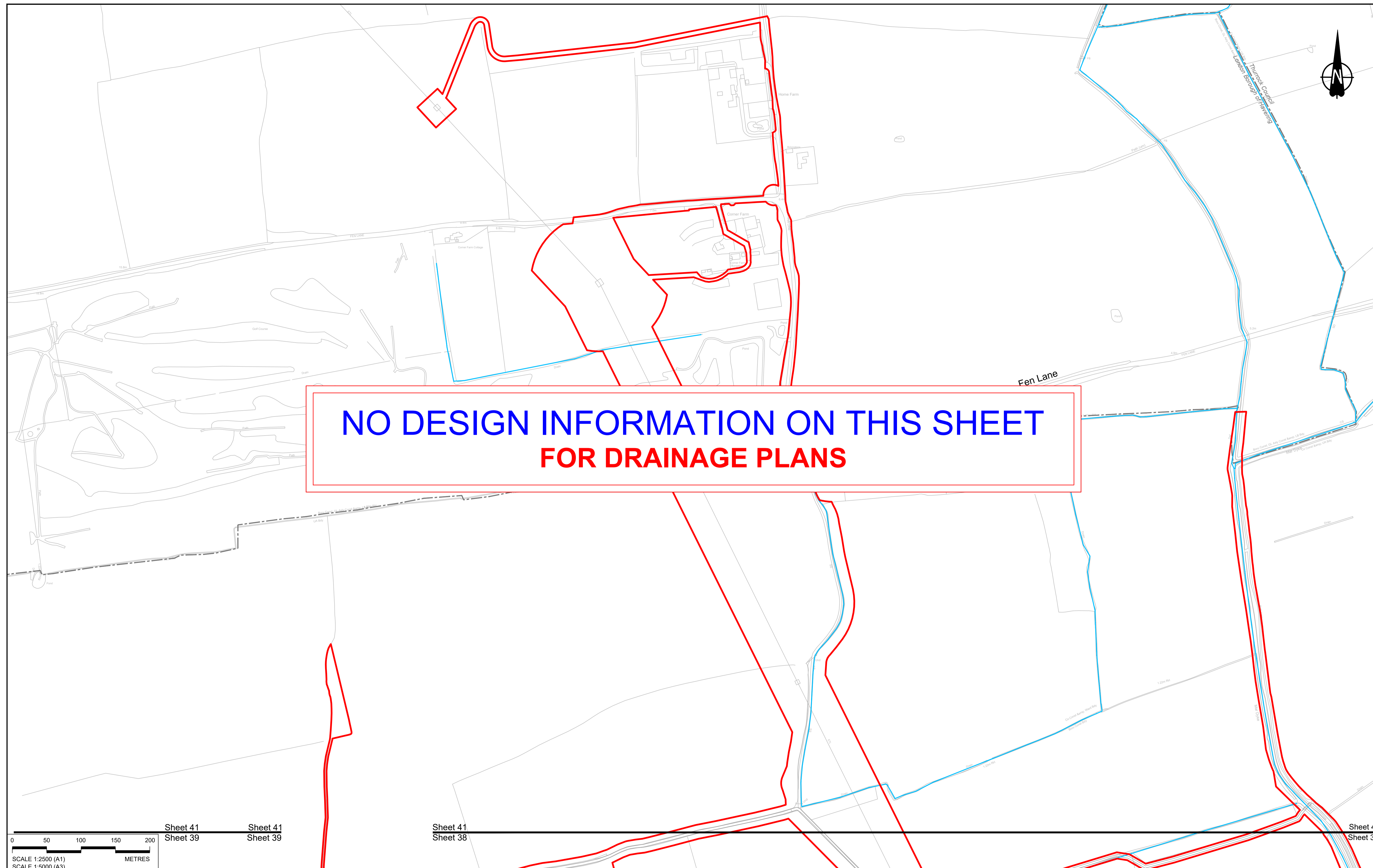
BOUNDARIES		PROPOSED DRAINAGE	
	Order Limits		Watercourse diversion
	Local Authority boundary		Infiltration basin, attenuation pond, infiltration pond
	Existing watercourse		Swale
			Ditch
			Culvert or pipe
			P.S. Pumping station
			Containment for contaminated water from tunnel low point sump



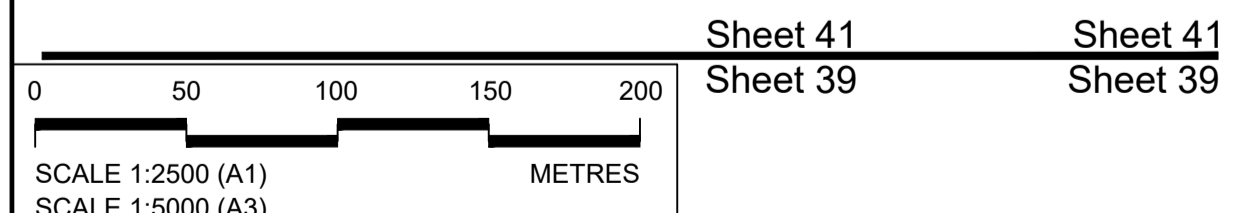
Client:

Project: **LOWER THAMES CROSSING**

Status	DCO Application	Original Size	A1	Revision	P01
Application Document Number	TR010032/APP/2.16	Scale	1:2500		
Drawing title	DRAINAGE PLANS REGULATION 5(2)(o) SHEET 40				
Drawing Number	HE540039-CJV-BOP-SZZ_DN100000 -DR-CD-10037				



**NO DESIGN INFORMATION ON THIS SHEET
FOR DRAINAGE PLANS**

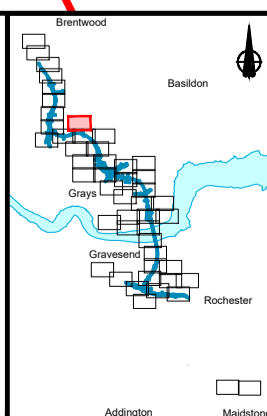


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P01	SB	19/10/2022	DCO Application	LY	BB	ASB
Rev	Status	Rev. Date	Purpose of revision	Drawn	Chck'd	Apprv'd

NOTES:

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- Where proposed catchment areas boundaries overlap with each other or the Order Limits they are shown adjacent to each other or the Order Limit to provide greater visual clarity but these could extend to the boundary of other catchment areas or the Order Limits as well.

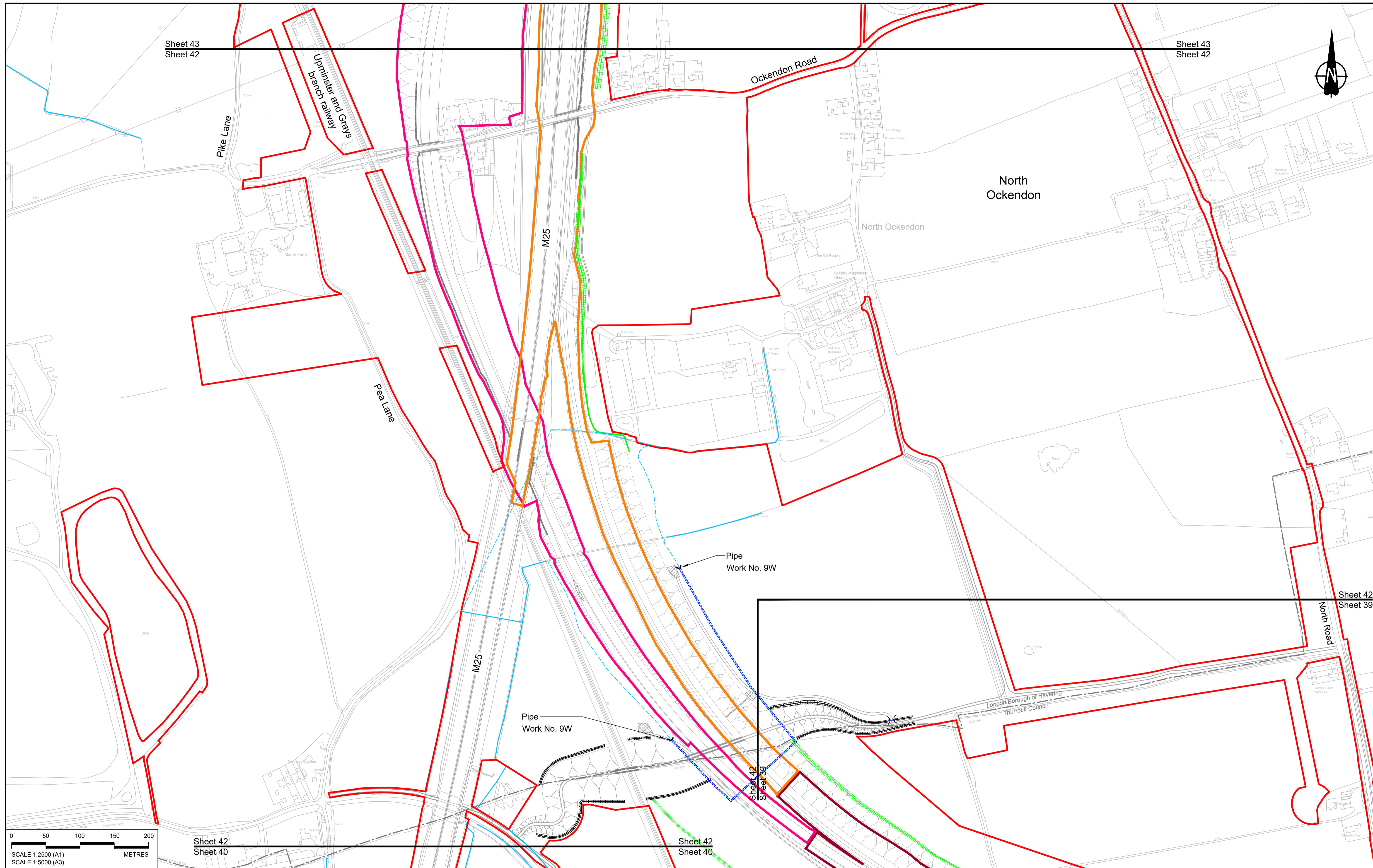
LEGEND:		
BOUNDARIES		
	Order Limits	
	Local Authority boundary	
	Existing watercourse	
PROPOSED DRAINAGE		
	Watercourse diversion	
	Infiltration basin, attenuation pond, infiltration pond	
	Swale	
	Ditch	
	Culvert or pipe	
	P.s.	Pumping station
	Containment for contaminated water from tunnel low point sump	



Client: **national highways**

Project: **LOWER THAMES CROSSING**

Status	DCO Application	Original Size	Revision
Application Document Number	TR010032/APP/2.16	A1	P01
Drawing title	DRAINAGE PLANS REGULATION 5(2)(o) SHEET 41		
Drawing Number	HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10039		
		Scale	1:2500



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Uppminster and Grays
branch railway

Ockendon Road

North
Ockendon

Pike Lane

Pea Lane

M25

M25

Pipe
Work No. 9W

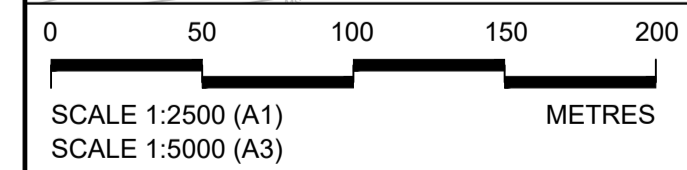
Pipe
Work No. 9W

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North Road

London Borough of Havering
Thurrock Council



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P01	SB	19/10/2022	DCO Application	LY	BB	ASB
Rev	Status	Rev. Date	Purpose of revision	Drawn	Check'd	Apprv'd

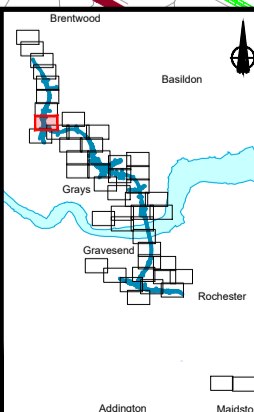
NOTES:
 1. The proposed works shown are illustrative only and will be subject to change as part of detailed design development. Any changes will be limited to being within the constraints included in the Development Consent Order (application document reference TR010032/APP/3.1).
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LEGEND:
BOUNDARIES
 - - - Order Limits
 - - - Local Authority boundary
 - - - Existing watercourse

PROPOSED DRAINAGE
 - - - Watercourse diversion
 [Symbol] Infiltration basin, attenuation pond, infiltration pond
 [Symbol] Swale

[Symbol] Ditch
 [Symbol] Culvert or pipe
 [Symbol] P.S. Pumping station
 [Symbol] Containment for contaminated water from tunnel low point sump

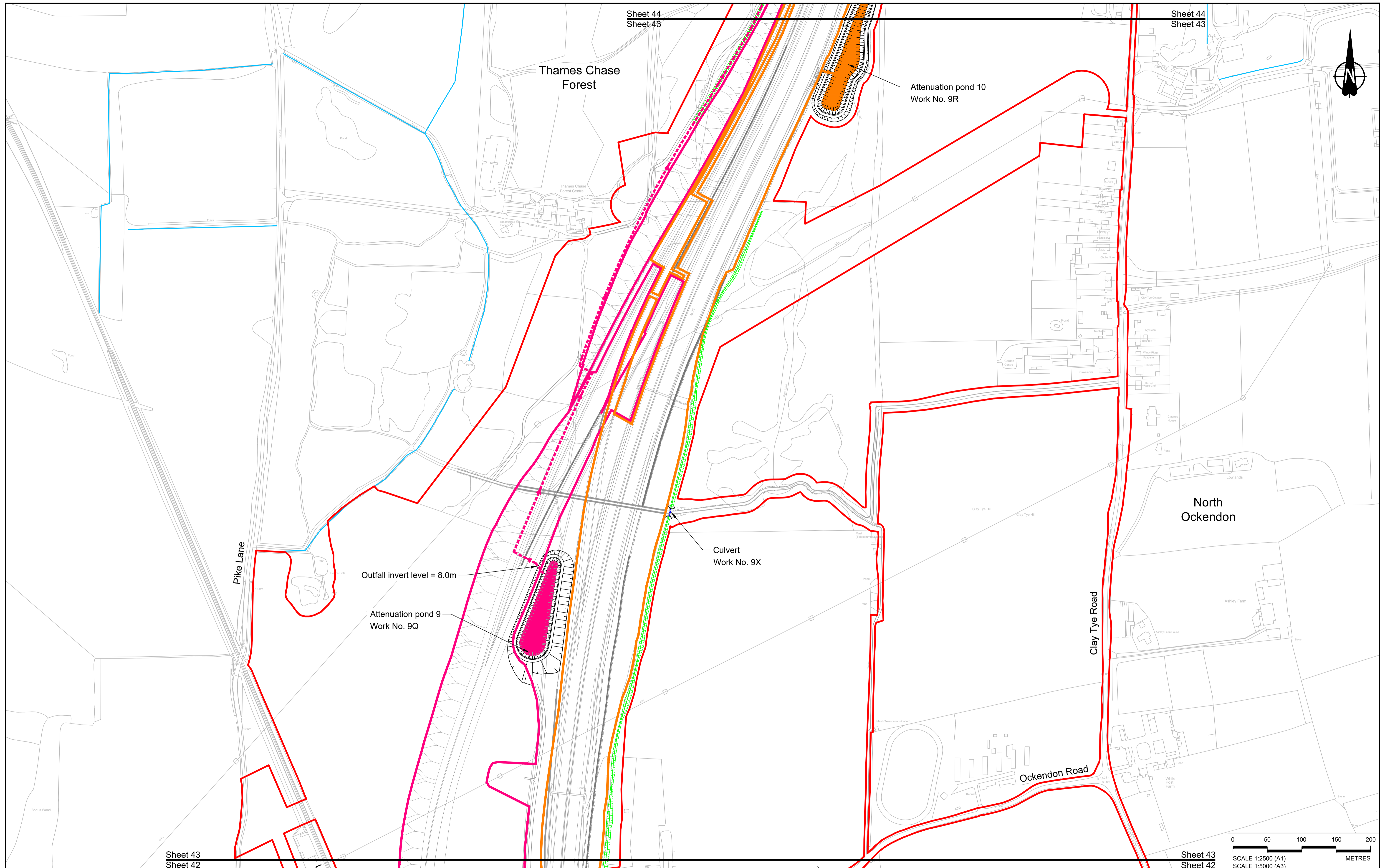
CATCHMENT AREAS AND OUTFALLS
 [Symbol] Catchment for Work No. 9Q
 [Symbol] Catchment for Work No. 9R



Client: **national highways**

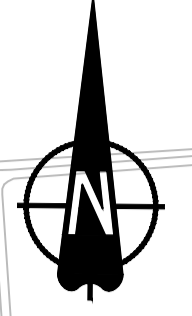
Project: **LOWER THAMES CROSSING**

Status	DCO Application	Original Size	Revision
Application Document Number	TR010032/APP/2.16	A1	P01
Drawing title	DRAINAGE PLANS REGULATION 5(2)(o) SHEET 42		
Drawing Number	HE540039-CJV-BOP-SZZ_DN100000 -DR-CD-10040		
Scale		1:2500	



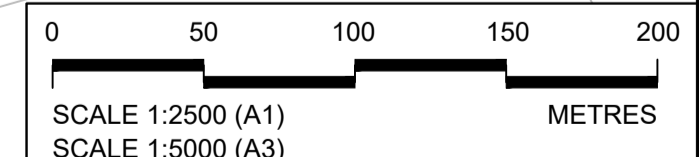
Sheet 44
Sheet 43

Sheet 44
Sheet 43



Sheet 43
Sheet 42

Sheet 43
Sheet 42



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P01	SB	19/10/2022	DCO Application	LY	BB	ASB
Rev	Status	Rev. Date	Purpose of revision	Drawn	Chk'd	Appr'd

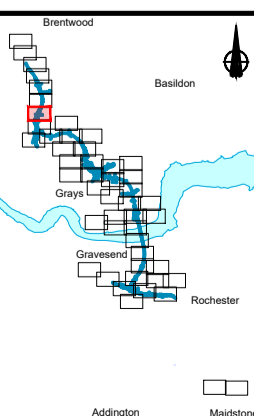
NOTES:
 1. The proposed works shown are illustrative only and will be subject to change as part of detailed design development. Any changes will be limited to being within the constraints included in the Development Consent Order (application document reference TR010032/APP/3.1).
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LEGEND:
BOUNDARIES
 - - - Order Limits
 - - - Local Authority boundary
 - - - Existing watercourse

PROPOSED DRAINAGE
 - - - Watercourse diversion
 [Symbol] Infiltration basin, attenuation pond, infiltration pond
 [Symbol] Swale

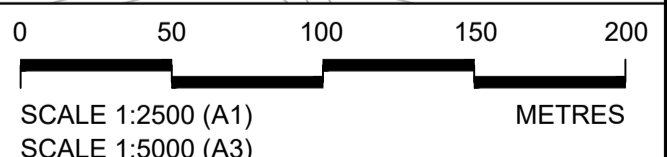
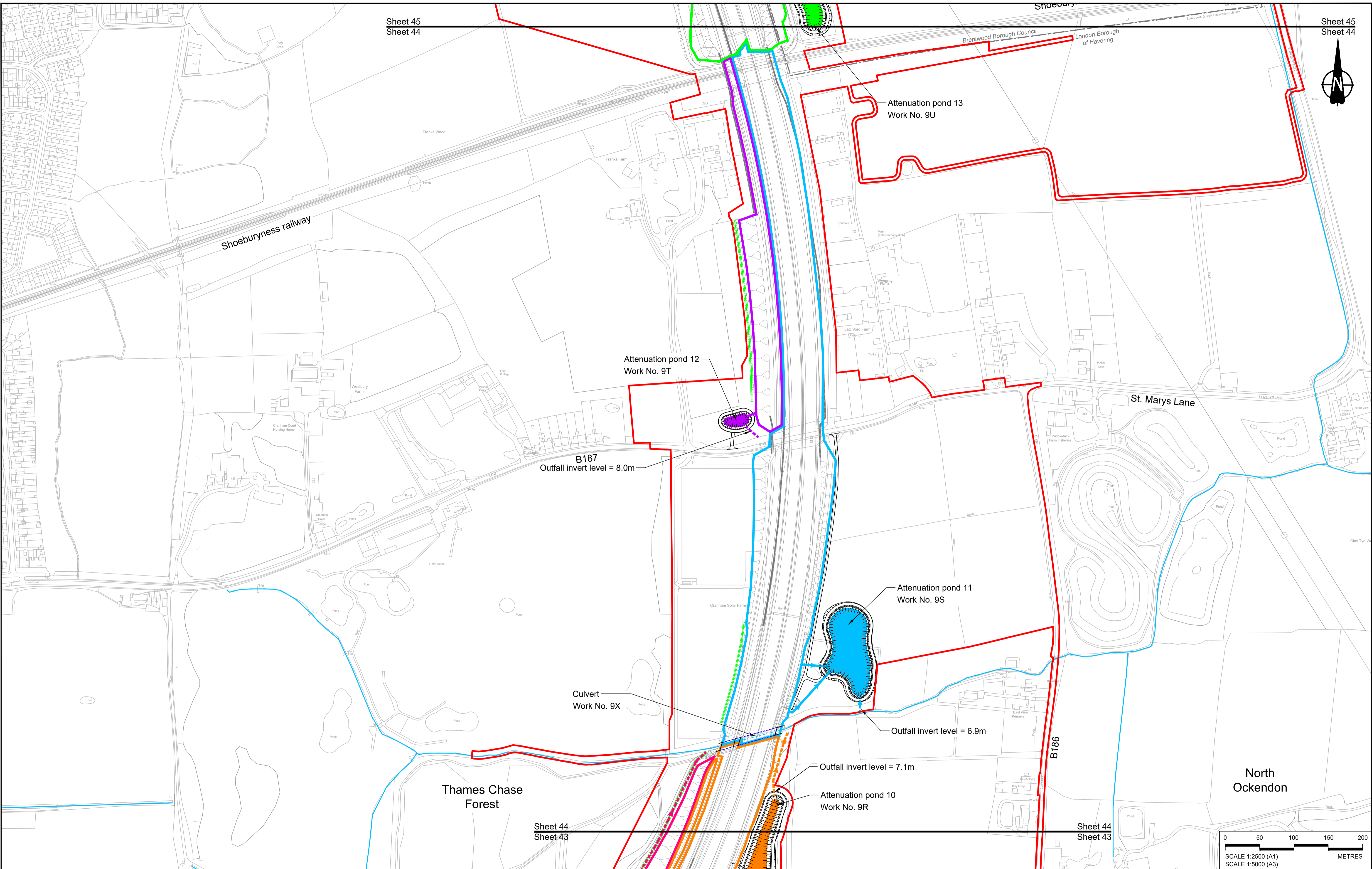
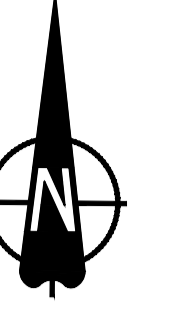
[Symbol] Ditch
 [Symbol] Culvert or pipe
 [Symbol] P.S. Pumping station
 [Symbol] Containment for contaminated water from tunnel low point sump

CATCHMENT AREAS AND OUTFALLS
 [Symbol] Catchment for Work No. 9Q
 [Symbol] Outfall to Work No. 9Q
 [Symbol] Discharge to existing drainage network or watercourse for Work No. 9Q
 [Symbol] Outfall to Work No. 9R
 [Symbol] Catchment for Work No. 9R



Client: **national highways**
 Project: **LOWER THAMES CROSSING**

Status	DCO Application	Original Size	Revision
Application Document Number	TR010032/APP/2.16	A1	P01
Drawing title	DRAINAGE PLANS REGULATION 5(2)(o) SHEET 43		
Drawing Number	HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10041		
		Scale	1:2500



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P01	SB	19/10/2022	DCO Application	CH	BB	ASB
Rev	Status	Rev. Date	Purpose of revision	Drawn	Check'd	Apprv'd

NOTES:

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BOUNDARIES

- Order Limits
- Local Authority boundary
- Existing watercourse

PROPOSED DRAINAGE

- Watercourse diversion
- Infiltration basin, attenuation pond, infiltration pond
- Swale

PROPOSED DRAINAGE

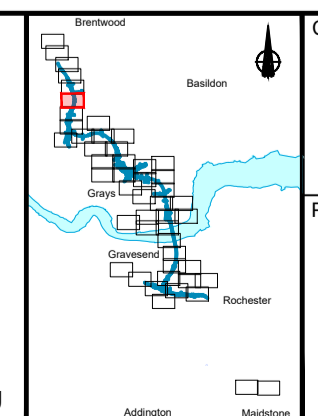
- Ditch
- Culvert or pipe
- Pumping station
- Containment for contaminated water from tunnel low point sump

CATCHMENT AREAS AND OUTFALLS

- Catchment for Work No. 9Q
- Outfall to Work No. 9Q
- Discharge to existing drainage network or watercourse for Work No. 9Q
- Catchment for Work No. 9R
- Outfall to Work No. 9R
- Discharge to existing drainage network or watercourse for Work No. 9R

CATCHMENT AREAS AND OUTFALLS

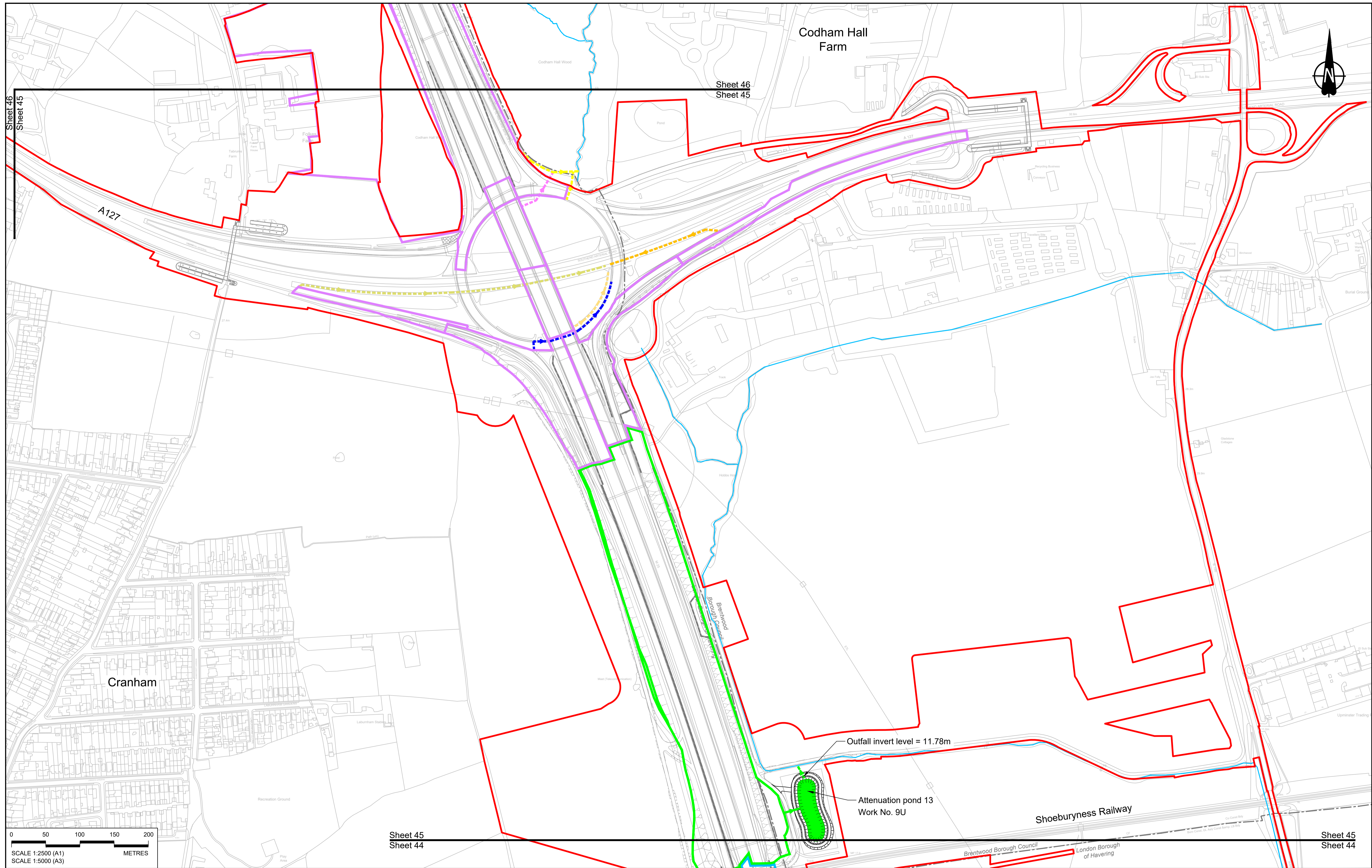
- Catchment for Work No. 9S
- Outfall to Work No. 9S
- Discharge to existing drainage network or watercourse for Work No. 9S
- Catchment for Work No. 9T
- Outfall to Work No. 9T
- Discharge to existing drainage network or watercourse for Work No. 9T
- Catchment for Work No. 9U



national highways

Project: LOWER THAMES CROSSING

Status	DCO Application	Original Size	Revision
Application Document Number	TR010032/APP/2.16	A1	P01
Drawing title	DRAINAGE PLANS REGULATION 5(2)(o) SHEET 44		
Drawing Number	HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10042		
Scale		1:2500	



0 50 100 150 200
SCALE 1:2500 (A1)
SCALE 1:5000 (A3)
METRES

P01	SB	19/10/2022	DCO Application	LY	BB	ASB
Rev	Status	Rev. Date	Purpose of revision	Drawn	Check'd	Apprv'd

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LEGEND:

BOUNDARIES

- Order Limits
- Local Authority boundary
- Existing watercourse

PROPOSED DRAINAGE

- Watercourse diversion
- Infiltration basin, attenuation pond, infiltration pond
- Swale
- Ditch
- Culvert or pipe
- P.S. Pumping station
- Containment for contaminated water from tunnel low point sump

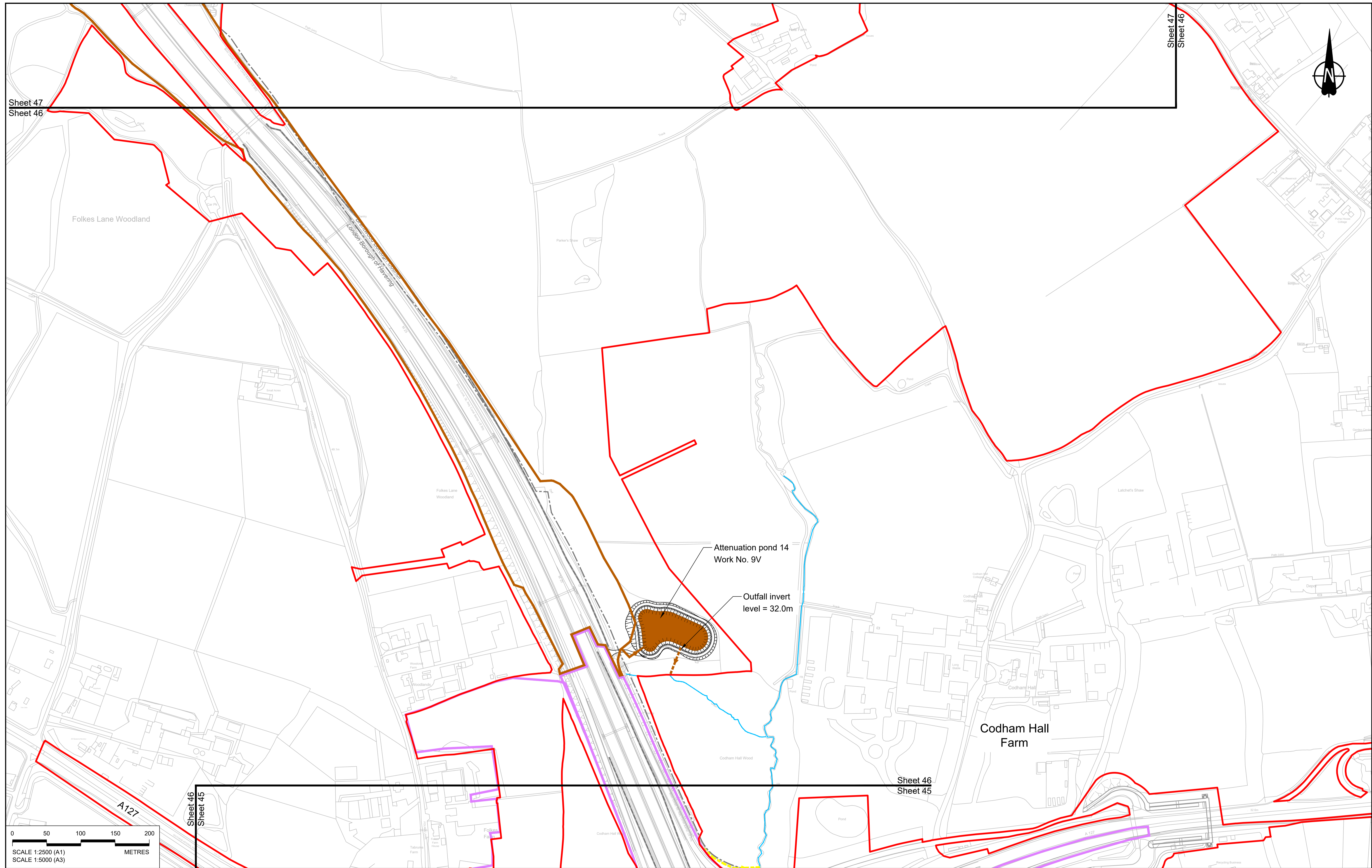
CATCHMENT AREAS AND OUTFALLS

- Existing Catchments
- Discharge 1 to existing drainage network
- Discharge to existing drainage network or watercourse for Work No. 9U
- Outfall to Work No. 9U
- Discharge 2 to existing drainage network
- Discharge 3 to existing drainage network
- Discharge 4 to existing drainage network
- Discharge 5 to existing drainage network
- Discharge 6 to existing drainage network
- Discharge 7 to existing drainage network

Client: **national highways**

Project: **LOWER THAMES CROSSING**

Status	DCO Application	Original Size	Revision
Application Document Number	TR010032/APP/2.16	A1	P01
Drawing title	DRAINAGE PLANS REGULATION 5(2)(o) SHEET 45		
Drawing Number	HE540039-CJV-BOP-SZZ_DN100000 -DR-CD-10043		
		Scale	1:2500



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Sheet 46

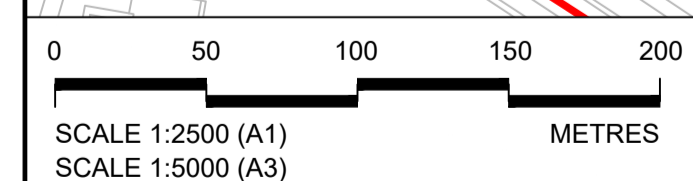
Sheet 47
Sheet 46

Folkes Lane Woodland

Attenuation pond 14
Work No. 9V
Outfall invert level = 32.0m

Codham Hall Farm

Sheet 46
Sheet 45



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NOTES:						
1.	The proposed works shown are illustrative only and will be subject to change as part of detailed design development. Any changes will be limited to being within the constraints included in the Development Consent Order (application document reference TR010032/APP/3.1).					
2.	These plans should be read in conjunction with Schedule 1 (Authorised Development) of the Development Consent Order (application document reference TR010032/APP/3.1)					
3.	Where proposed catchment areas boundaries overlap with each other or the Order Limits they are shown adjacent to each other or the Order Limit to provide greater visual clarity but these could extend to the boundary of other catchment areas or the Order Limits as well.					
Rev	Status	Rev. Date	Purpose of revision	Drawn	Check'd	Apprv'd
P01	SB	19/10/2022	DCO Application	LY	BB	ASB

NOTES:
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3. Where proposed catchment areas boundaries overlap with each other or the Order Limits they are shown adjacent to each other or the Order Limit to provide greater visual clarity but these could extend to the boundary of other catchment areas or the Order Limits as well.

LEGEND:
BOUNDARIES
— Order Limits
--- Local Authority boundary
— Existing watercourse

PROPOSED DRAINAGE
--- Watercourse diversion
--- Infiltration basin, attenuation pond, infiltration pond
--- Swale

--- Ditch
--- Culvert or pipe
P.S. Pumping station
--- Containment for contaminated water from tunnel low point sump

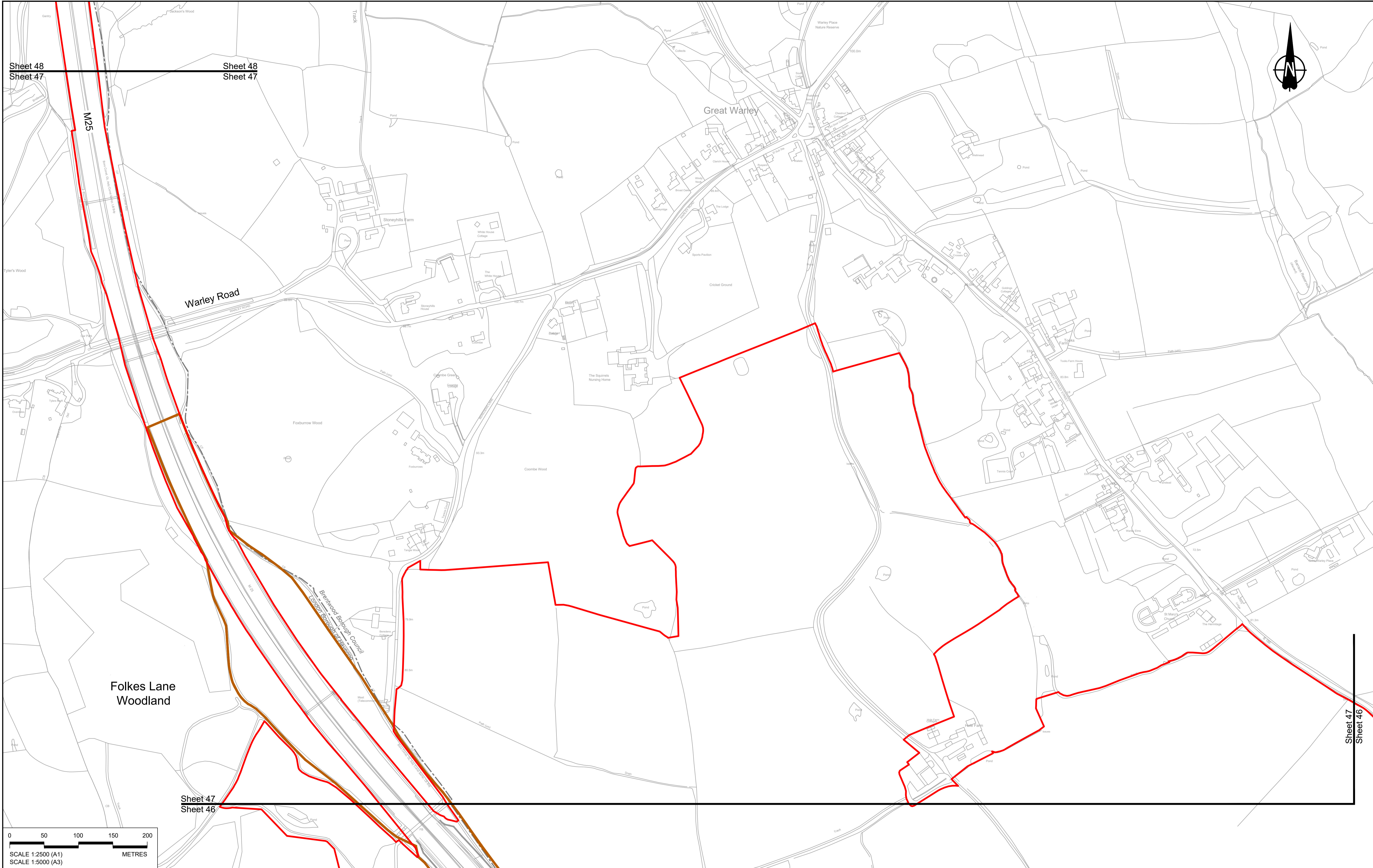
CATCHMENT AREAS AND OUTFALLS
--- Existing catchment for Work No. 9V
--- Outfall to Work No. 9V
--- Discharge to existing drainage network or watercourse for Work No. 9V
--- Existing catchment for Discharge 7



Client: **national highways**

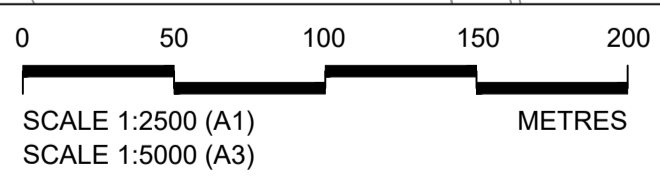
Project: **LOWER THAMES CROSSING**

Status	DCO Application	Original Size	Revision
Application Document Number	TR010032/APP/2.16	A1	P01
Drawing title	DRAINAGE PLANS REGULATION 5(2)(o) SHEET 46		
Drawing Number	HE540039-CJV-BOP-SZZ_DN100000 -DR-CD-10044		
		Scale	1:2500



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Folkes Lane
Woodland

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P01	SB	19/10/2022	DCO Application	LY	BB	ASB
Rev	Status	Rev. Date	Purpose of revision	Drawn	Check'd	Apprv'd

NOTES:
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 2. These plans should be read in conjunction with Schedule 1 (Authorised Development) of the Development Consent Order (application document reference TR010032/APP/3.1).
 3. Proposed works are shown adjacent to the Order Limits to provide greater visual clarity of the extent of the work but could extend to the Order Limits as well.

BOUNDARIES	
	Order Limits
	Local Authority boundary
	Existing watercourse

PROPOSED DRAINAGE	
	Watercourse diversion
	Infiltration basin, attenuation pond, infiltration pond
	Swale

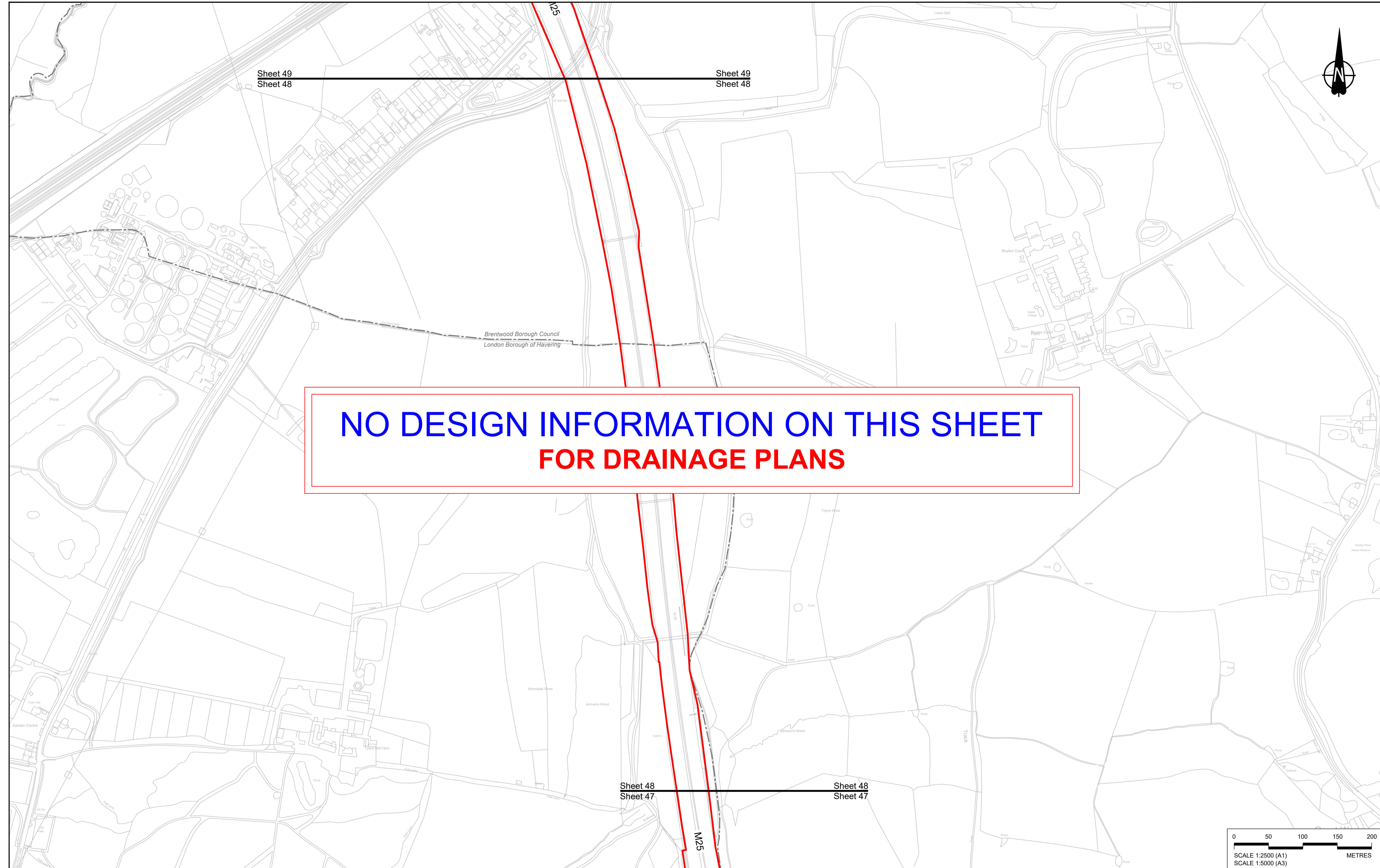
CATCHMENT AREAS AND OUTFALLS	
	Existing catchment for Work No. 9V

	Ditch
	Culvert or pipe
	P.S.
	Containment for contaminated water from tunnel low point sump

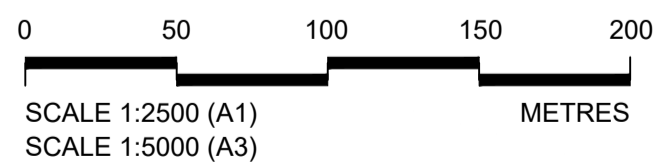
Client:

Project: **LOWER THAMES CROSSING**

Status	DCO Application	Original Size	A1	Revision	P01
Application Document Number	TR010032/APP/2.16	Scale	1:2500		
Drawing title	DRAINAGE PLANS REGULATION 5(2)(o) SHEET 47				
Drawing Number	HE540039-CJV-BOP-SZZ_DN100000 -DR-CD-10045				



**NO DESIGN INFORMATION ON THIS SHEET
FOR DRAINAGE PLANS**



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P01	S8	19/10/2022	DCO Application	LY	BB	ASB
Rev	Status	Rev. Date	Purpose of revision	Drawn	Chkd	Apprvd

NOTES:

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- Where proposed catchment areas boundaries overlap with each other or the Order Limits they are shown adjacent to each other or the Order Limit to provide greater visual clarity but these could extend to the boundary of other catchment areas or the Order Limits as well.

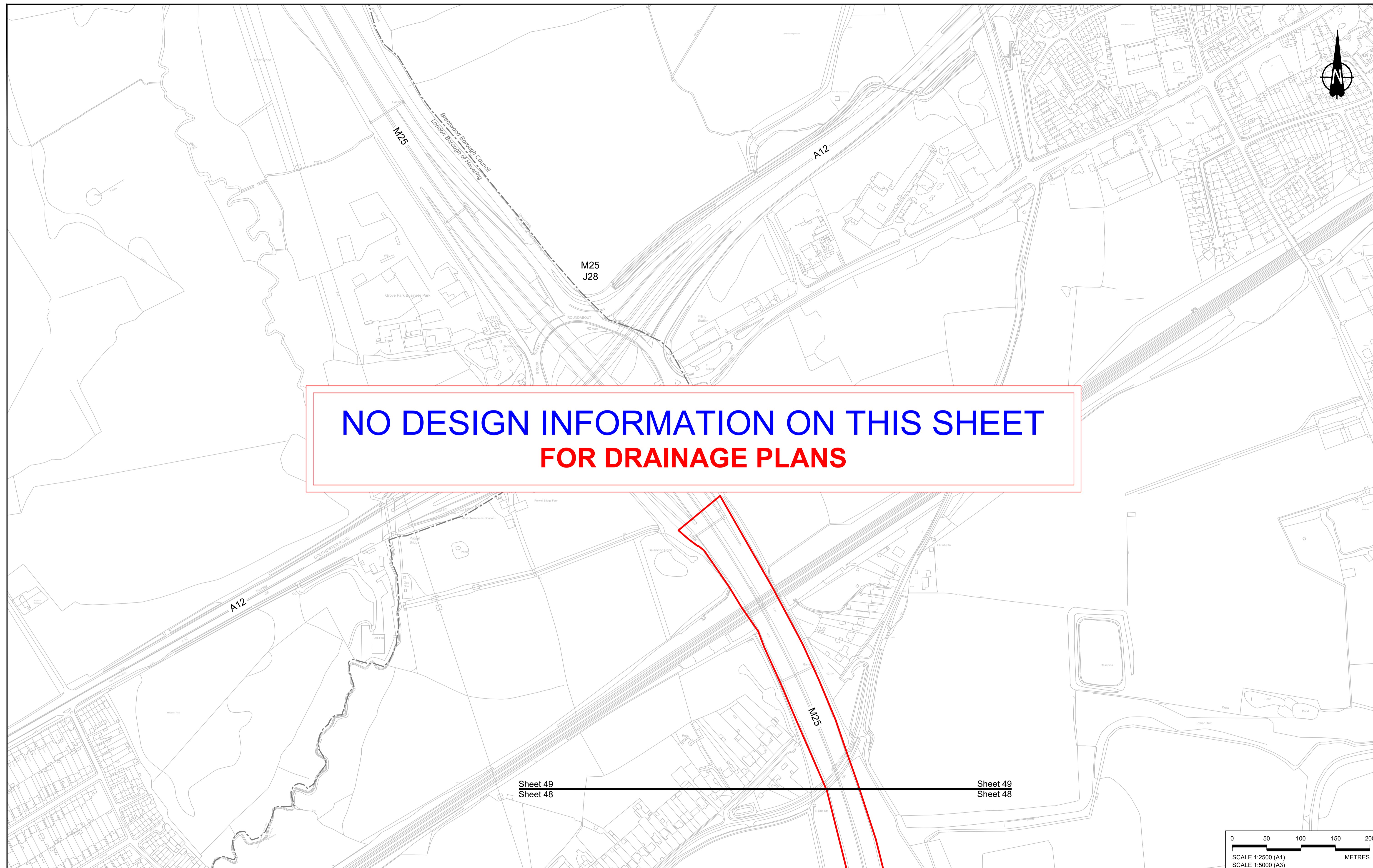
LEGEND:

BOUNDARIES	PROPOSED DRAINAGE	
Order Limits	Watercourse diversion	Ditch
Local Authority boundary	Infiltration basin, attenuation pond, infiltration pond	Culvert or pipe
Existing watercourse	Swale	P.S. Pumping station
		Containment for contaminated water from tunnel low point sump

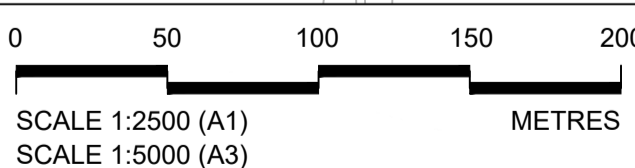
Client: **national highways**

Project: **LOWER THAMES CROSSING**

Status	DCO Application	Original Size	A1	Revision	P01
Application Document Number	TR010032/APP/2.16	Scale	1:2500		
Drawing title	DRAINAGE PLANS REGULATION 5(2)(o) SHEET 48				
Drawing Number	HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10046				



**NO DESIGN INFORMATION ON THIS SHEET
FOR DRAINAGE PLANS**



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P01	SB	19/10/2022	DCO Application	LY	BB	ASB
Rev	Status	Rev. Date	Purpose of revision	Drawn	Chck'd	Apprv'd

NOTES:

- The proposed works shown are illustrative only and will be subject to change as part of detailed design development. Any changes will be limited to being within the constraints included in the Development Consent Order (application document reference TR010032/APP/3.1).
- These plans should be read in conjunction with Schedule 1 (Authorised Development) of the Development Consent Order (application document reference TR010032/APP/3.1).
- Where proposed catchment areas boundaries overlap with each other or the Order Limits they are shown adjacent to each other or the Order Limit to provide greater visual clarity but these could extend to the boundary of other catchment areas or the Order Limits as well.

BOUNDARIES		PROPOSED DRAINAGE	
	Order Limits		Watercourse diversion
	Local Authority boundary		Infiltration basin, attenuation pond, infiltration pond
	Existing watercourse		Swale
	Ditch		Culvert or pipe
	P.S.		Pumping station
	Containment for contaminated water from tunnel low point sump		

Client

Project

LOWER THAMES CROSSING

Status	DCO Application	Original Size	A1	Revision	P01
Application Document Number	TR010032/APP/2.16	Scale	1:2500		
Drawing title	DRAINAGE PLANS REGULATION 5(2)(o) SHEET 49				
Drawing Number	HE540039-CJV-BOP-SZZ_DN100000 -DR-CD-10047				

HE540039-CJV-BOP-SZZ_DN000000 -DR-CD-10047.dwt

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