



Lower Thames Crossing

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

APFP Regulation 5(2)(o)

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

Volume 2

DATE: November 2023

DEADLINE: 7

Deleted: September

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

VERSION: 4.0

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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)

(Tracked changes 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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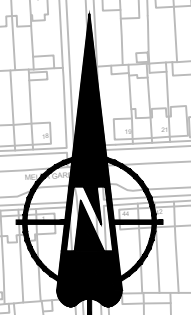
Document Title	Document Number	Revision
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 12	TR010032/APP/2.16	P01
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 13	TR010032/APP/2.16	P01
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 14	TR010032/APP/2.16	P01
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 15	TR010032/APP/2.16	P01
DRAINAGE 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

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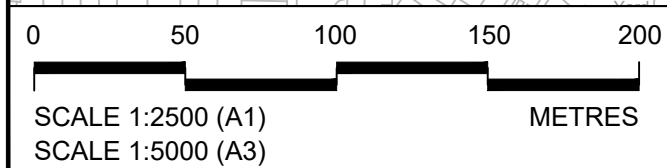
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Document Title	Document Number	Revision
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 25	TR010032/APP/2.16	P01
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 26	TR010032/APP/2.16	P01
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 27	TR010032/APP/2.16	P01
DRAINAGE PLANS 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
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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
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DRAINAGE PLANS REGULATION 5(2)(o) SHEET 44	TR010032/APP/2.16	P01
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	Check'd	Apprv'd
P01	S8	19/10/2022	DCO Application	LY	BB	ASB
P02	S8	17/11/2023	Deadline 7	LY	BB	ASB

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). These plans should be read in conjunction with Schedule 1 (Authorised Development) of the Development Consent Order (application document reference TR010032/APP/3.1).
 2. 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.

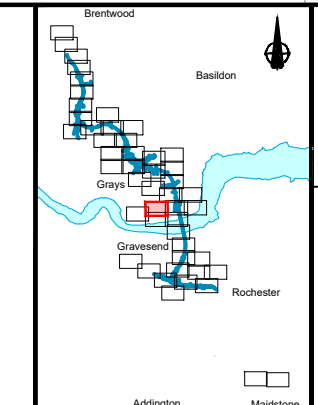
LEGEND:

BOUNDARIES

- Order Limits
- Local Authority boundary
- Existing watercourse

PROPOSED DRAINAGE

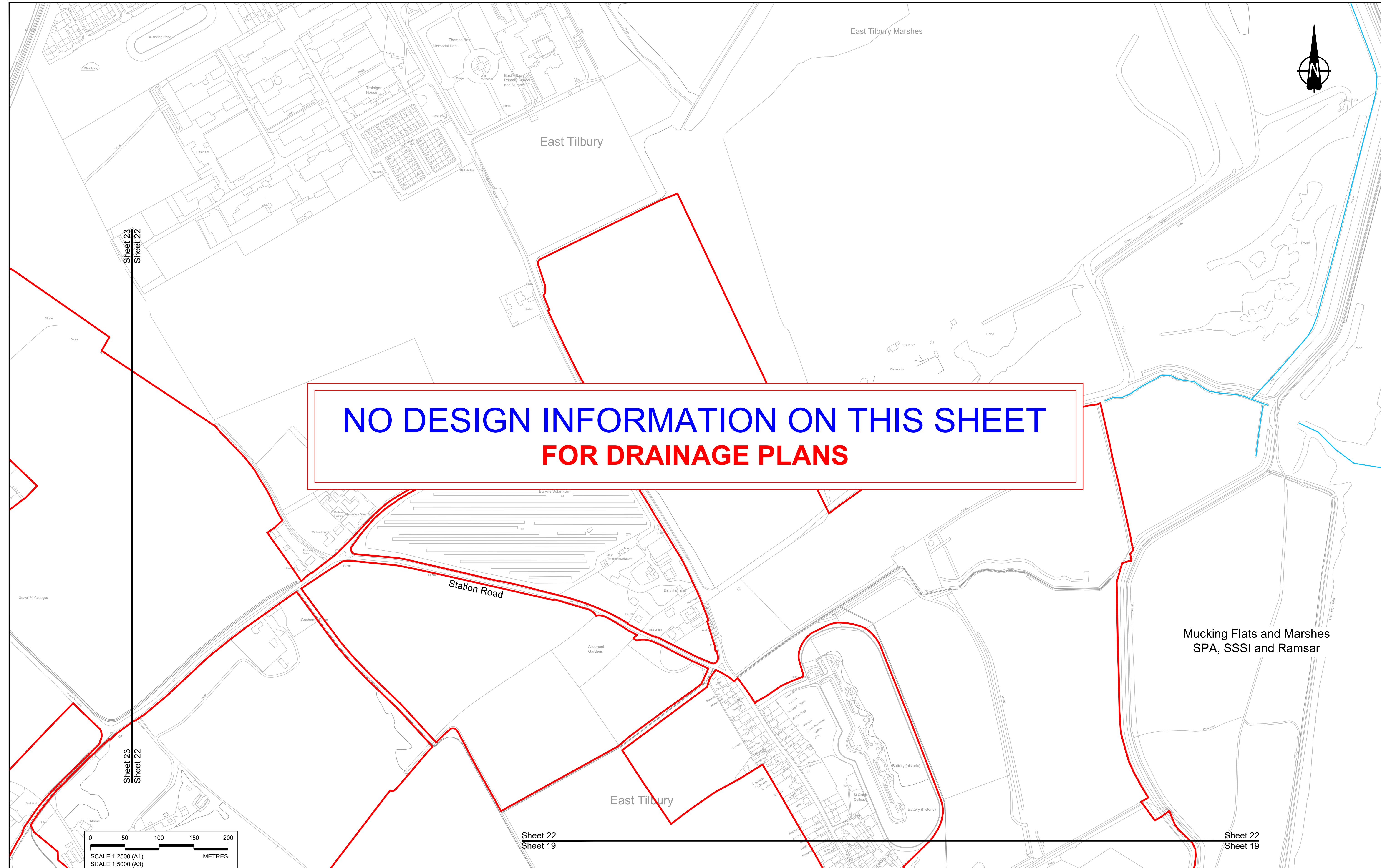
- Watercourse diversion
- Infiltration basin, attenuation pond, infiltration pond
- Swale
- Ditch
- Culvert or pipe
- P.S. Pumping station
- Containment for contaminated water from tunnel low point sump



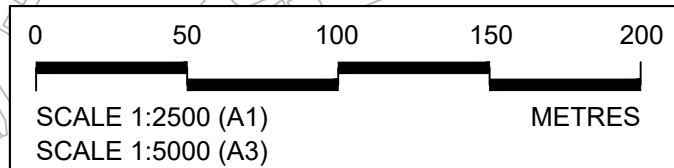
national highways

LOWER THAMES CROSSING

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Drawing 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	Chkd	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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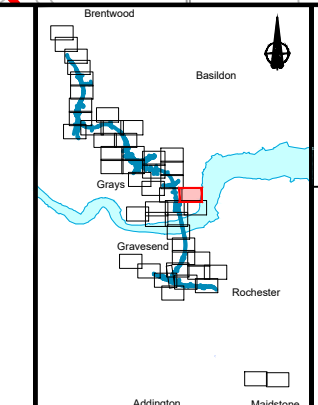
BOUNDARIES

- 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



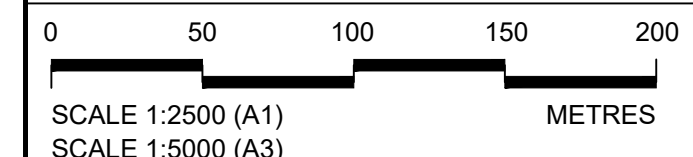
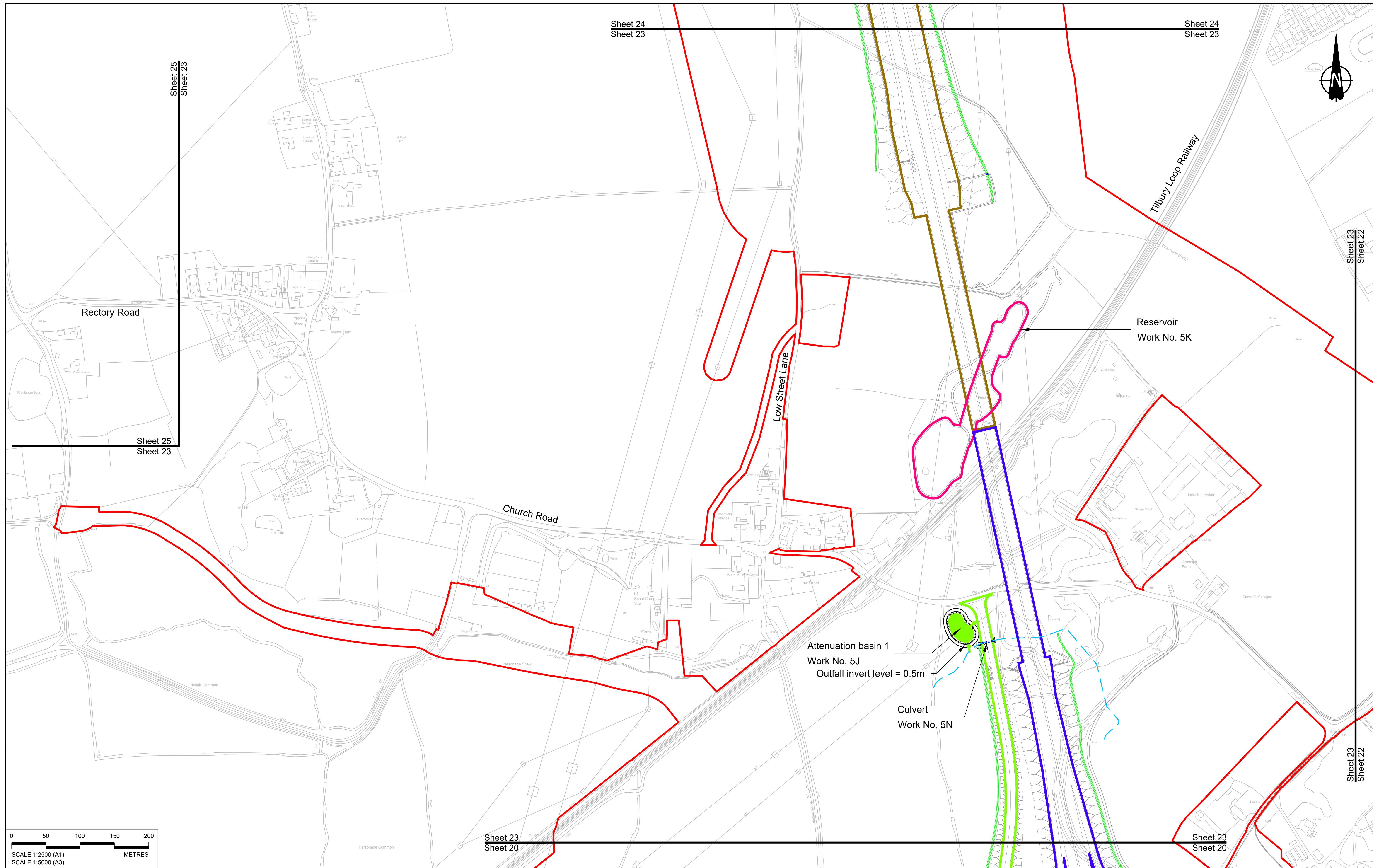
national highways

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

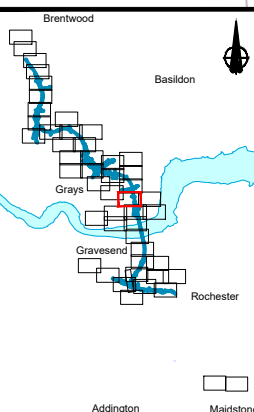
- Order Limits
- Local Authority boundary
- Existing watercourse

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

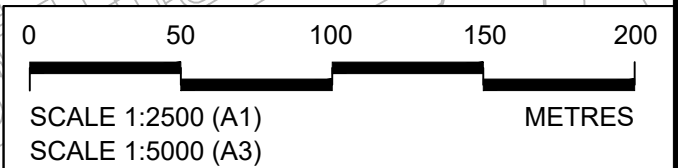
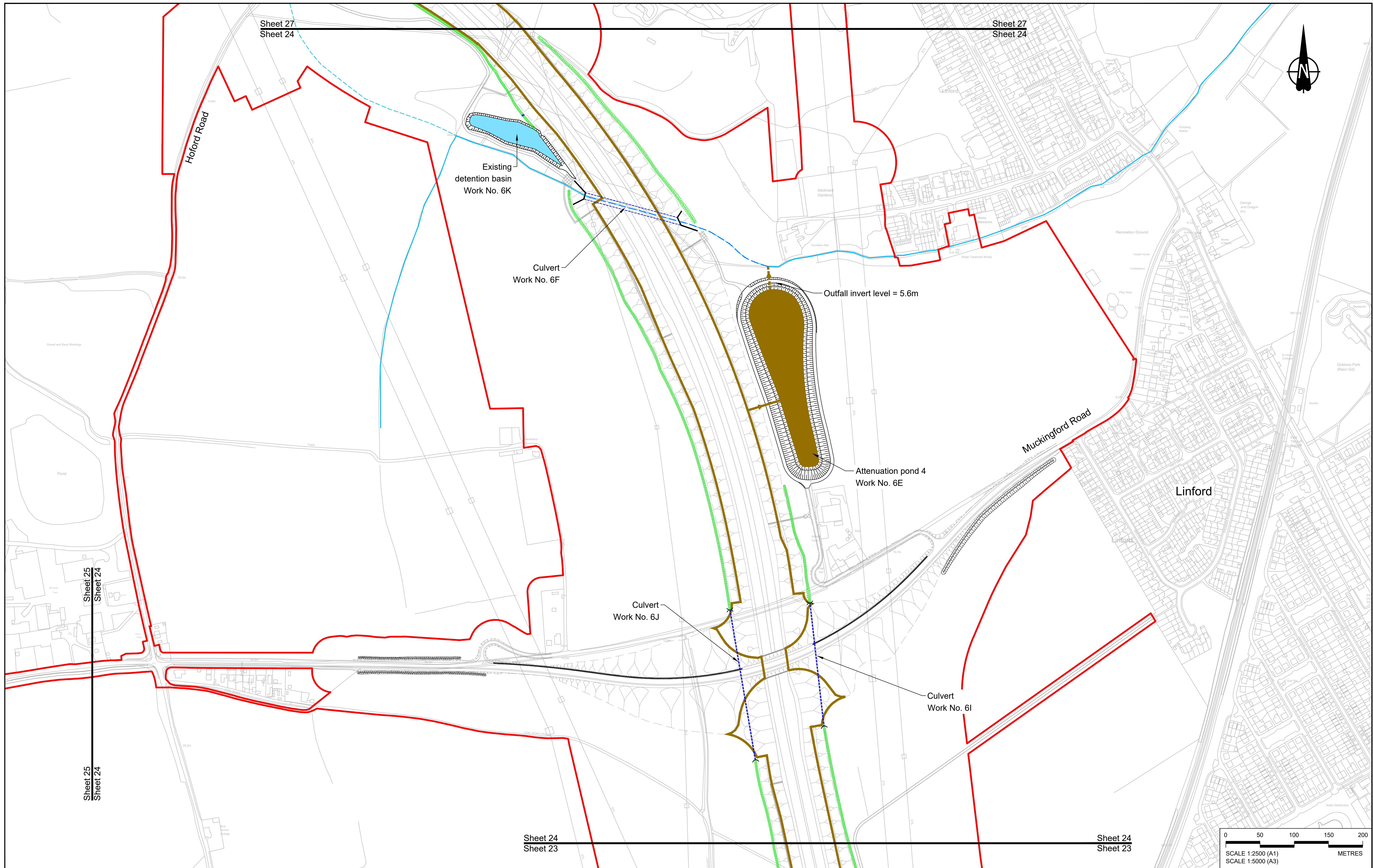
- Catchment for Work No. 5H and 5I
- Catchment for Work No. 5J
- Outfall to Work No. 5J
- Discharge to existing drainage network or watercourse for Work No. 5J
- Catchment for Work No. 6E
- Reservoir Work No. 5K



Client: **national highways**

Project: **LOWER THAMES CROSSING**

Status	DCO Examination	Original Size	A1	Revision	P03
Application Document Number	TR010032/APP/2.16	Scale	1:2500		
Drawing title	DRAINAGE PLANS REGULATION 5(2)(o) SHEET 23				
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Rev	Status	Rev. Date	Purpose of revision	Drawn	Chk'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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BOUNDARIES

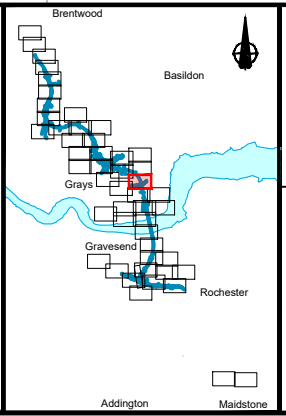
- Order Limits
- Local Authority boundary
- Existing watercourse

PROPOSED DRAINAGE

- Watercourse diversion
- Infiltration basin, attenuation pond, infiltration pond
- Swale
- Ditch
- Culvert or pipe
- P.S. Pumping station
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CATCHMENT AREAS AND OUTFALLS

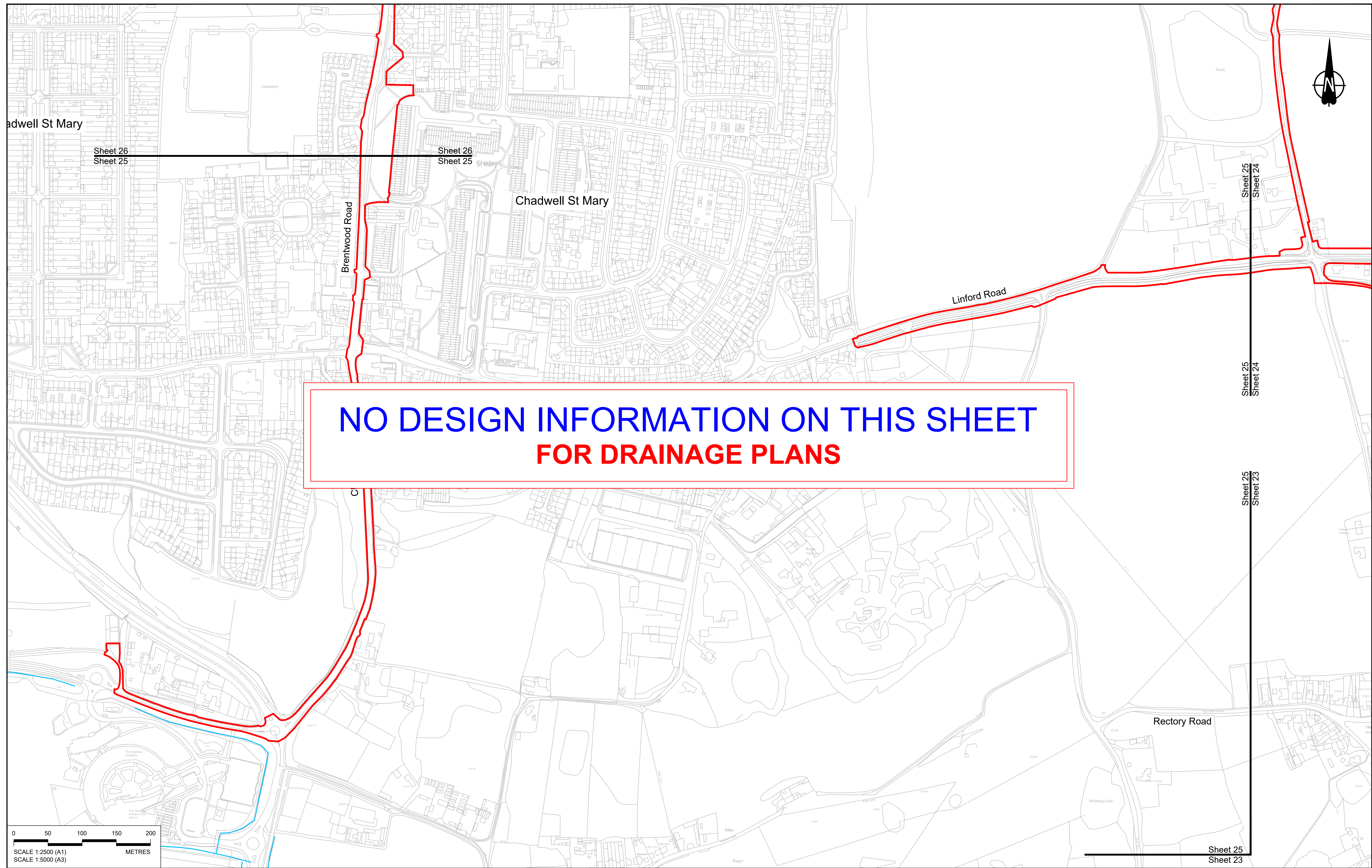
- Catchment for Work No. 6E
- Outfall to Work No. 6E
- Discharge to existing drainage network or watercourse for Work No. 6E



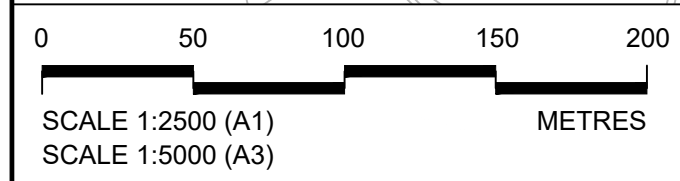
Client: national highways

Project: LOWER THAMES CROSSING

Status	DCO Examination	Original Size	A1	Revision	P02
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**NO DESIGN INFORMATION ON THIS SHEET
FOR DRAINAGE PLANS**



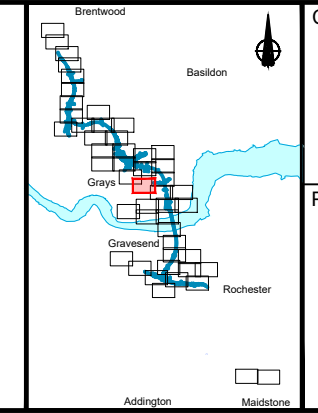
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Rev	Status	Rev. Date	Purpose of revision	Drawn	Chck'd	Apprv'd

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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



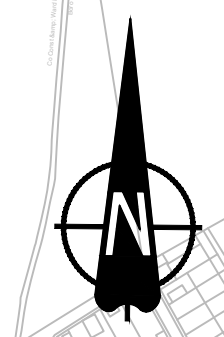
national highways

Project: **LOWER THAMES CROSSING**

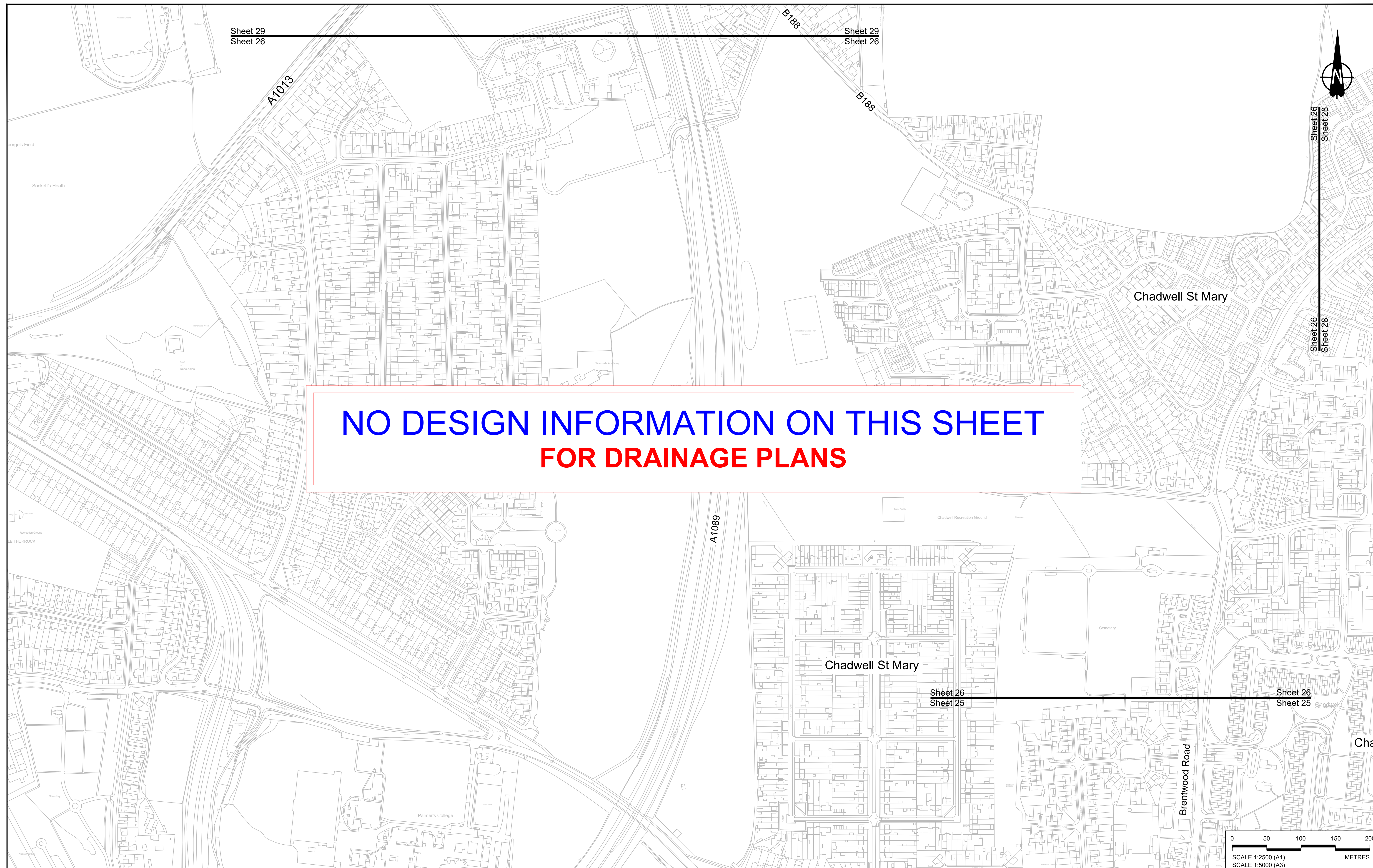
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		Scale	1:2500

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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	Chck'd	Apprv'd

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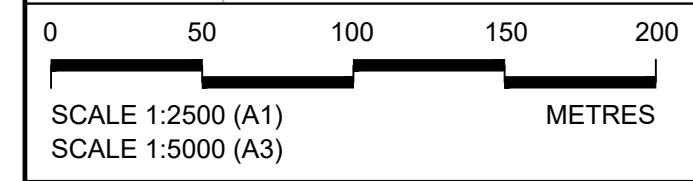
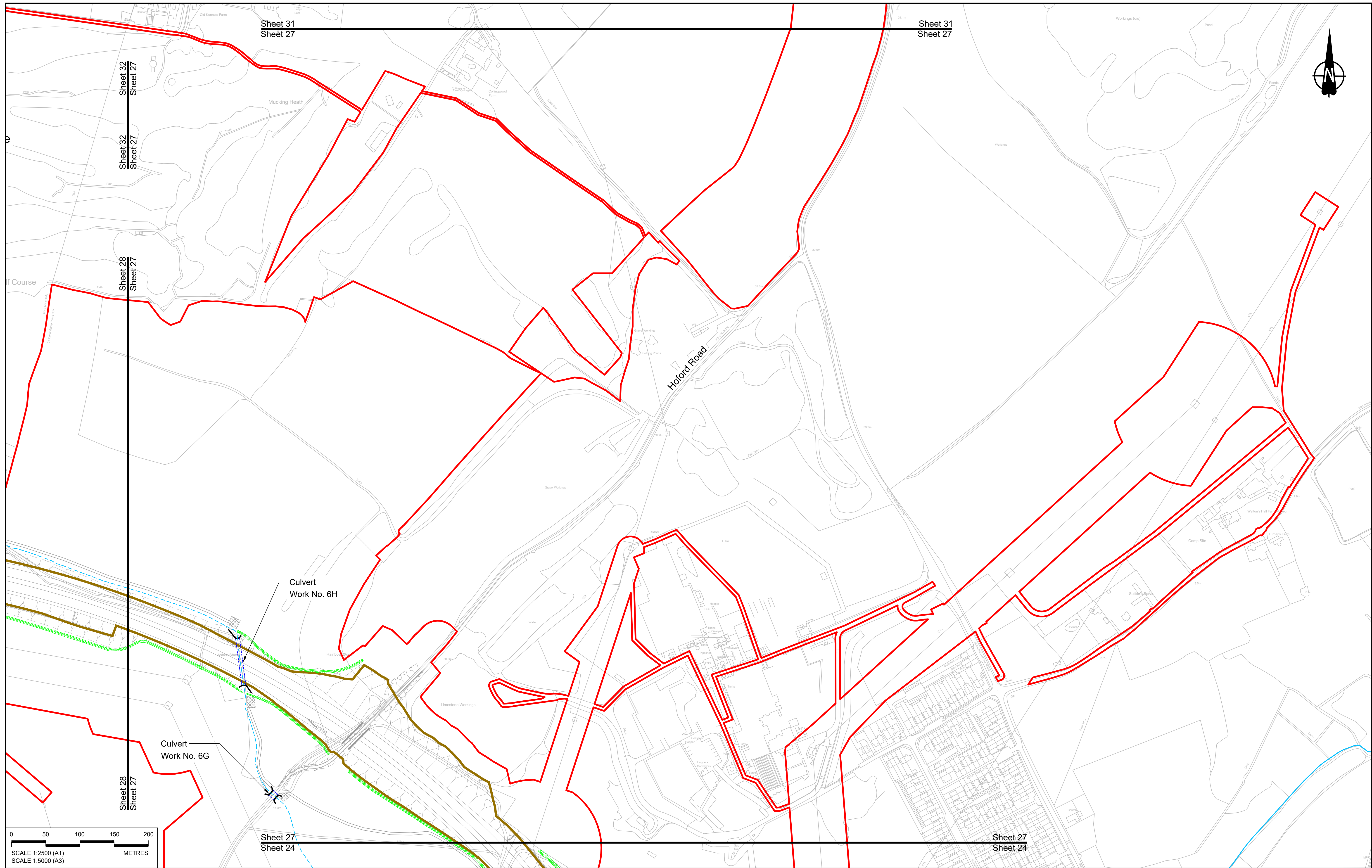
LEGEND:

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

LOWER THAMES CROSSING

Status	DCO Application	Original Size	Revision
Application Document Number	TR010032/APP/2.16	A1	P01
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Drawing Number	HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10023		
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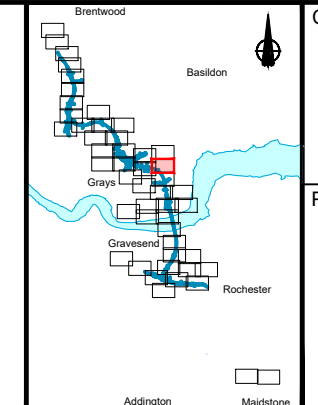
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P01	SB	19/10/2022	DCO Application	LY	BB	ASB								
Rev	Status	Rev. Date	Purpose of revision	Drawn	Chck'd	Apprv'd								

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LEGEND:

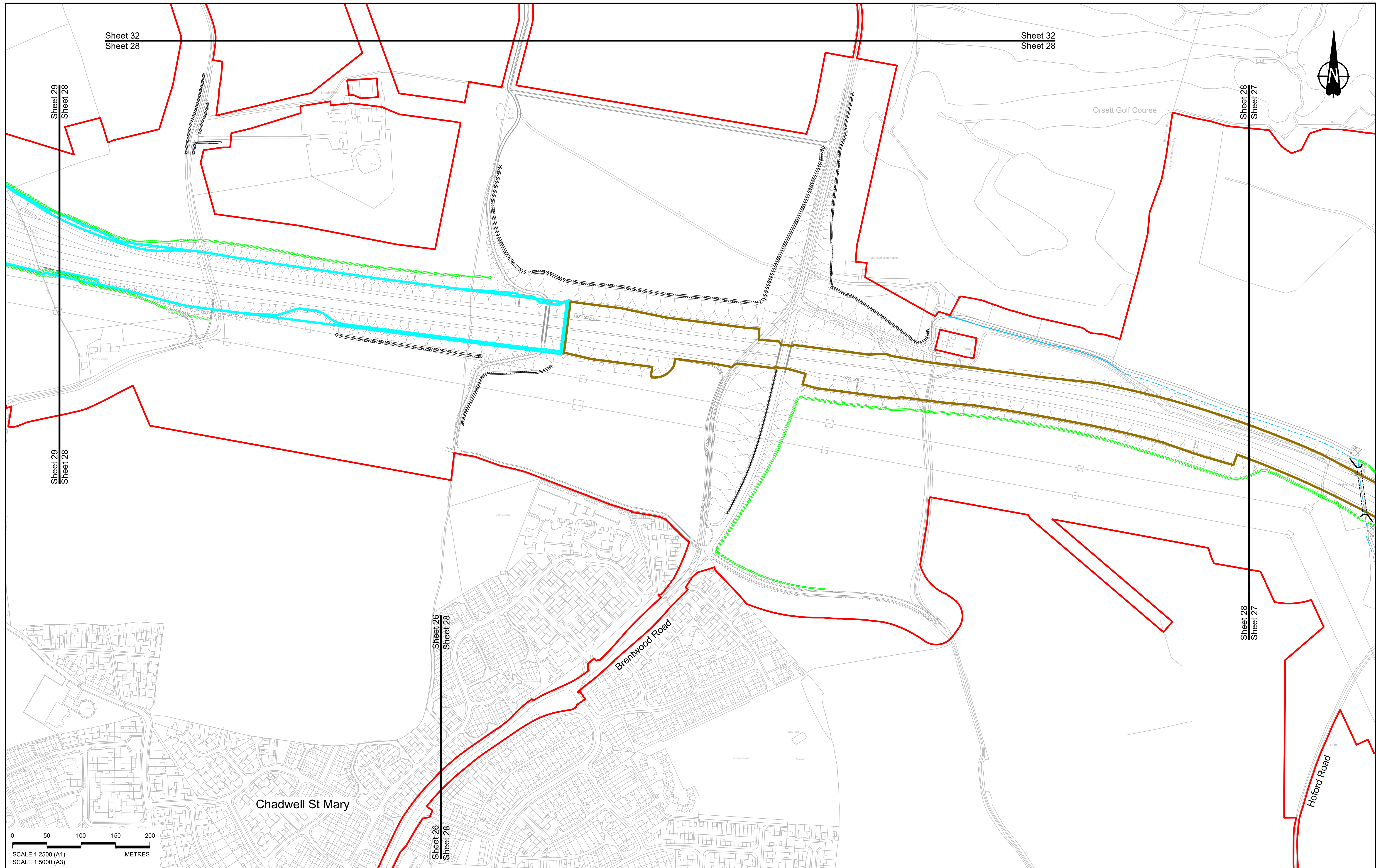
BOUNDARIES	PROPOSED DRAINAGE	CATCHMENT AREAS AND OUTFALLS
<ul style="list-style-type: none"> — Order Limits Local Authority boundary — Existing watercourse 	<ul style="list-style-type: none"> Watercourse diversion Local Authority boundary Infiltration basin, attenuation pond, infiltration pond Swale 	<ul style="list-style-type: none"> Catchment for Work No. 6E 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 27		
Drawing Number	HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10024		
		Scale	1:2500



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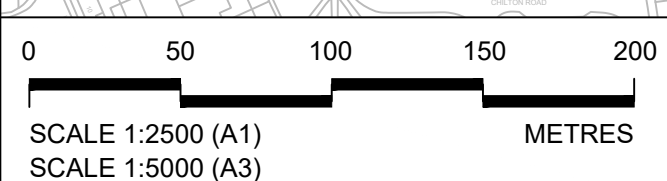
Sheet 29
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Sheet 28
Sheet 27

Sheet 29
Sheet 28

Sheet 28
Sheet 27

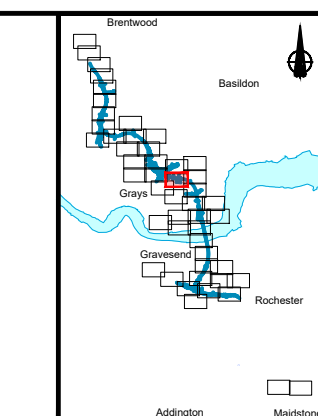
Sheet 26
Sheet 28



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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 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
					Pumping station
					Containment for contaminated water from tunnel low point sump

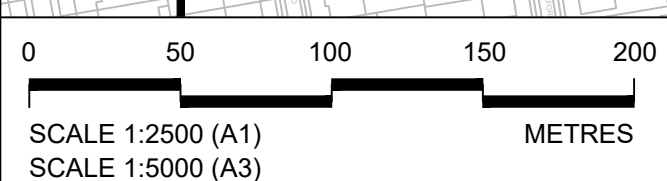
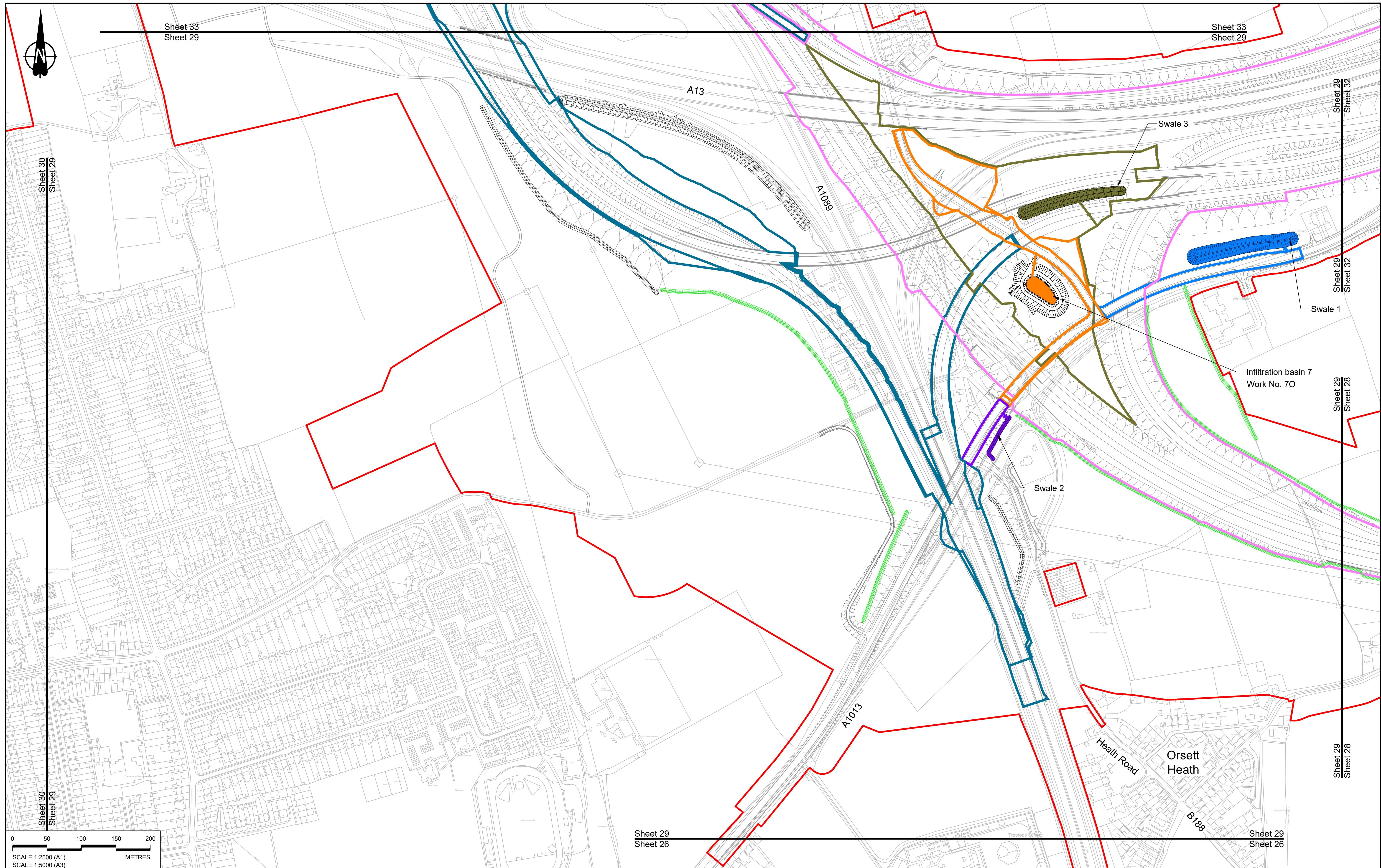
Rev	Status	Rev. Date	Purpose of revision	Drawn	Chck'd	Apprv'd
P01	SB	19/10/2022	DCO Application	LY	BB	ASB



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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LEGEND:

BOUNDARIES

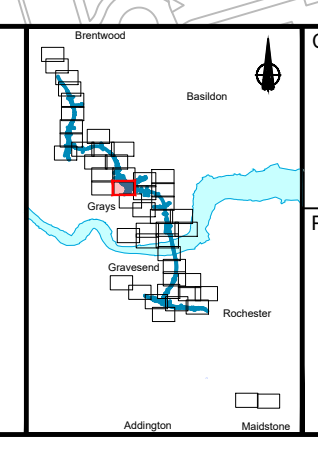
- Order Limits
- Local Authority boundary
- Existing watercourse

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

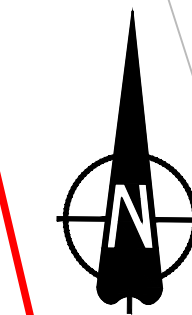
- Catchment for Work No. 8F
- Catchment for Work No. 8E
- Catchment for Work No. 70
- Outfall to Work No. 70
- Outfall to Swale 1
- Catchment for Swale 1
- Outfall to Swale 2
- Catchment for Swale 2
- Outfall to Swale 3
- Catchment for Swale 3



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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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)						
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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

LEGEND:

BOUNDARIES

- Order Limits
- Local Authority boundary
- Existing watercourse

PROPOSED DRAINAGE

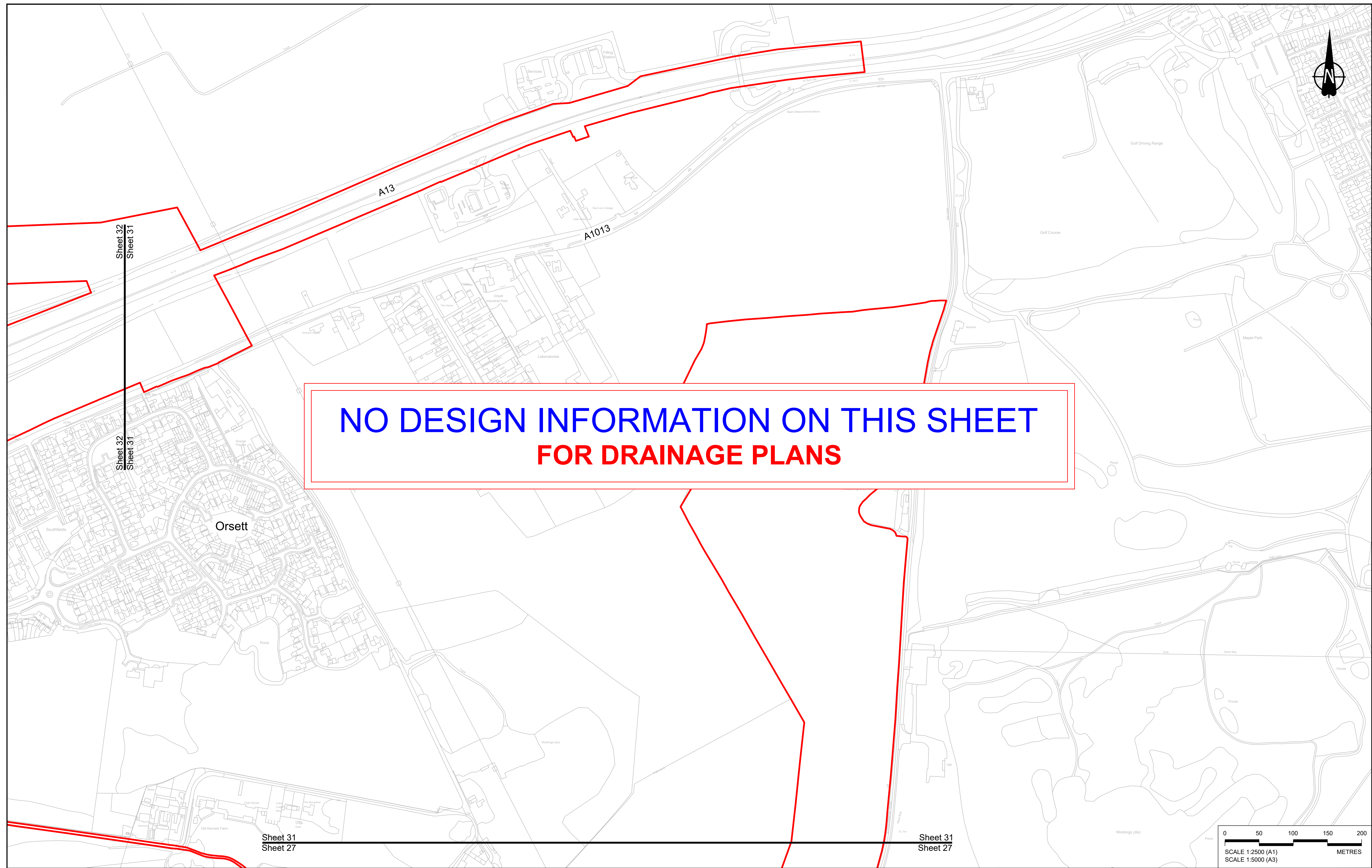
- Watercourse diversion
- Infiltration basin, attenuation pond, infiltration pond
- Swale
- Ditch
- Culvert or pipe
- P.S. Pumping station
- Containment for contaminated water from tunnel low point sump

national highways

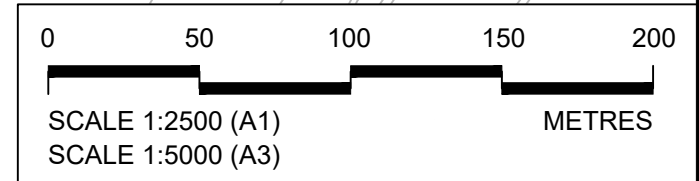
Project: LOWER THAMES CROSSING

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



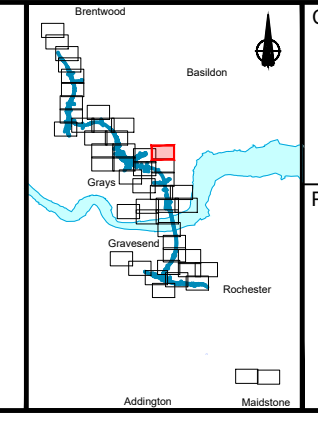
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P01	SB	19/10/2022	DCO Application	LY	BB	ASB
Rev	Status	Rev. Date	Purpose of revision	Drawn	Chck'd	Apprv'd

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LEGEND:

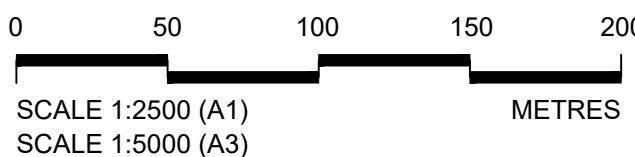
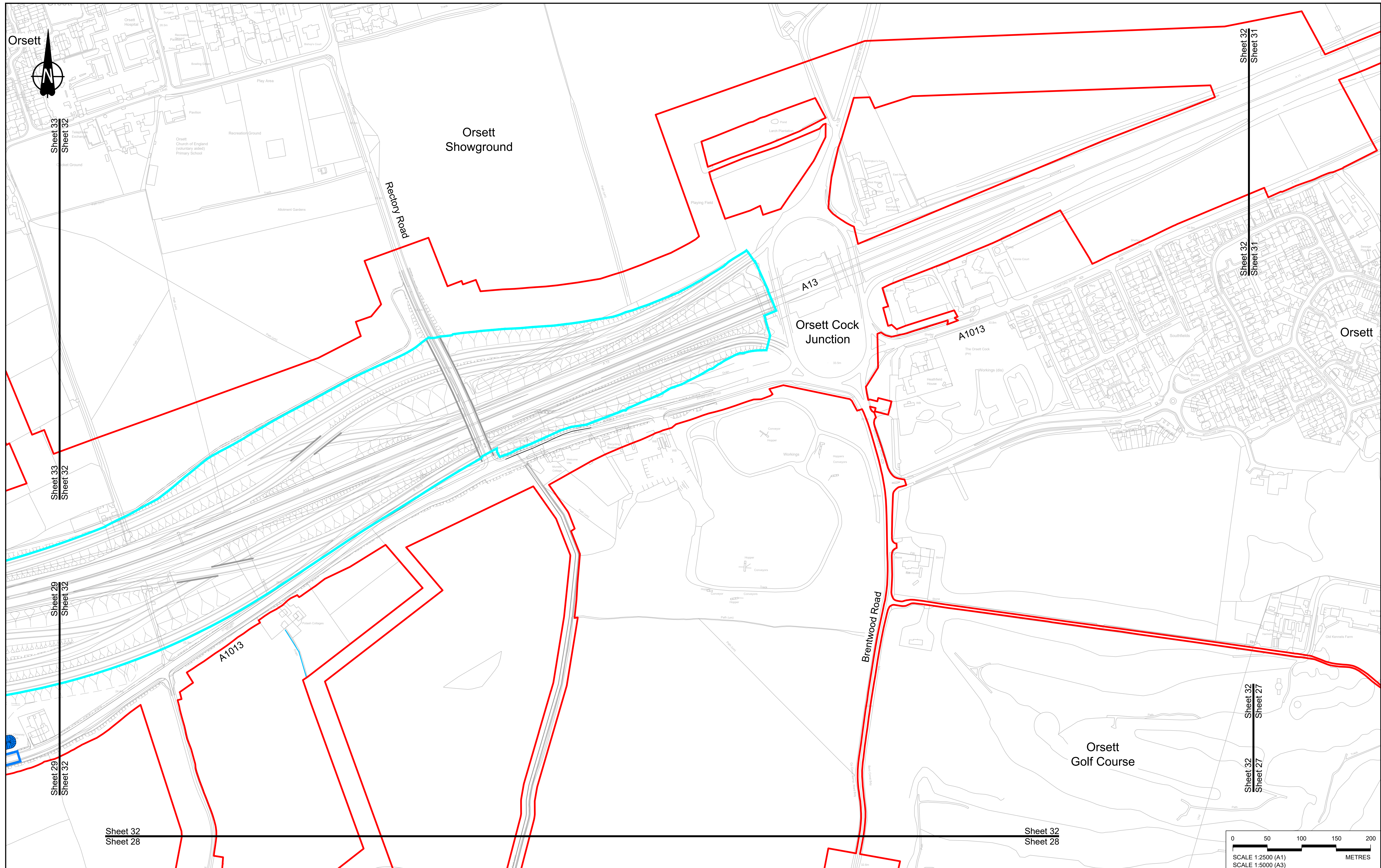
BOUNDARIES	PROPOSED DRAINAGE	
Order Limits	Watercourse diversion	Ditch
Local Authority boundary	Infiltration basin, attenuation pond, infiltration pond	Culvert or pipe
Existing watercourse	Swale	P.S. Pumping station
		Containment for contaminated water from tunnel low point sump



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



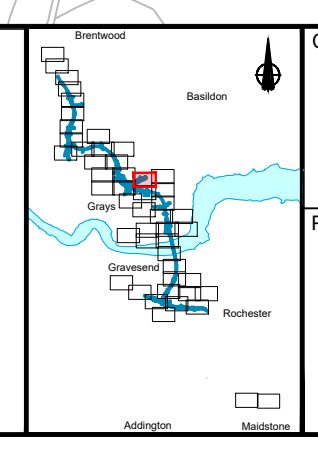
Contains Ordnance Survey data. © Crown copyright and database rights 2022. Ordnance Survey 100039649						
P01	SB	19/10/2022	DCO Application	LY	BB	ASB
Rev	Status	Rev. Date	Purpose of revision	Drawn	Chck'd	Apprv'd

NOTES:

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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	

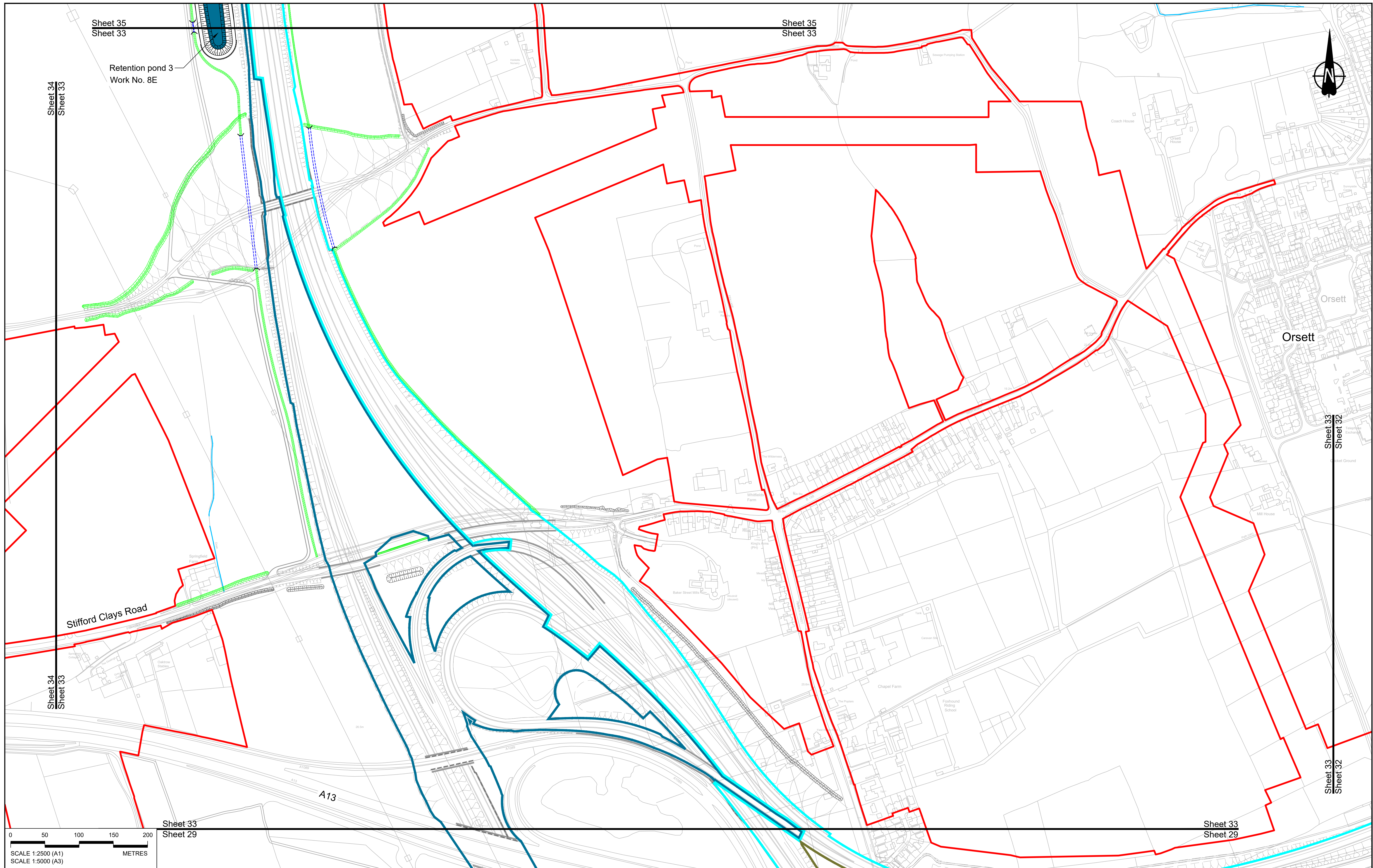


Client: **national highways**

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

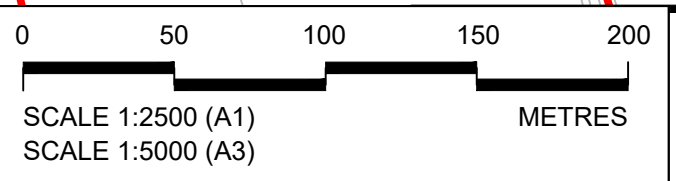
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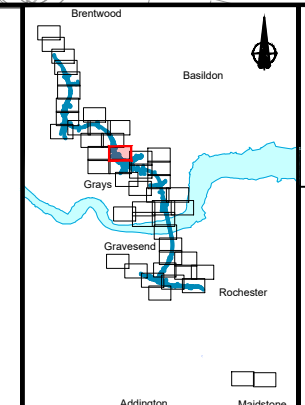
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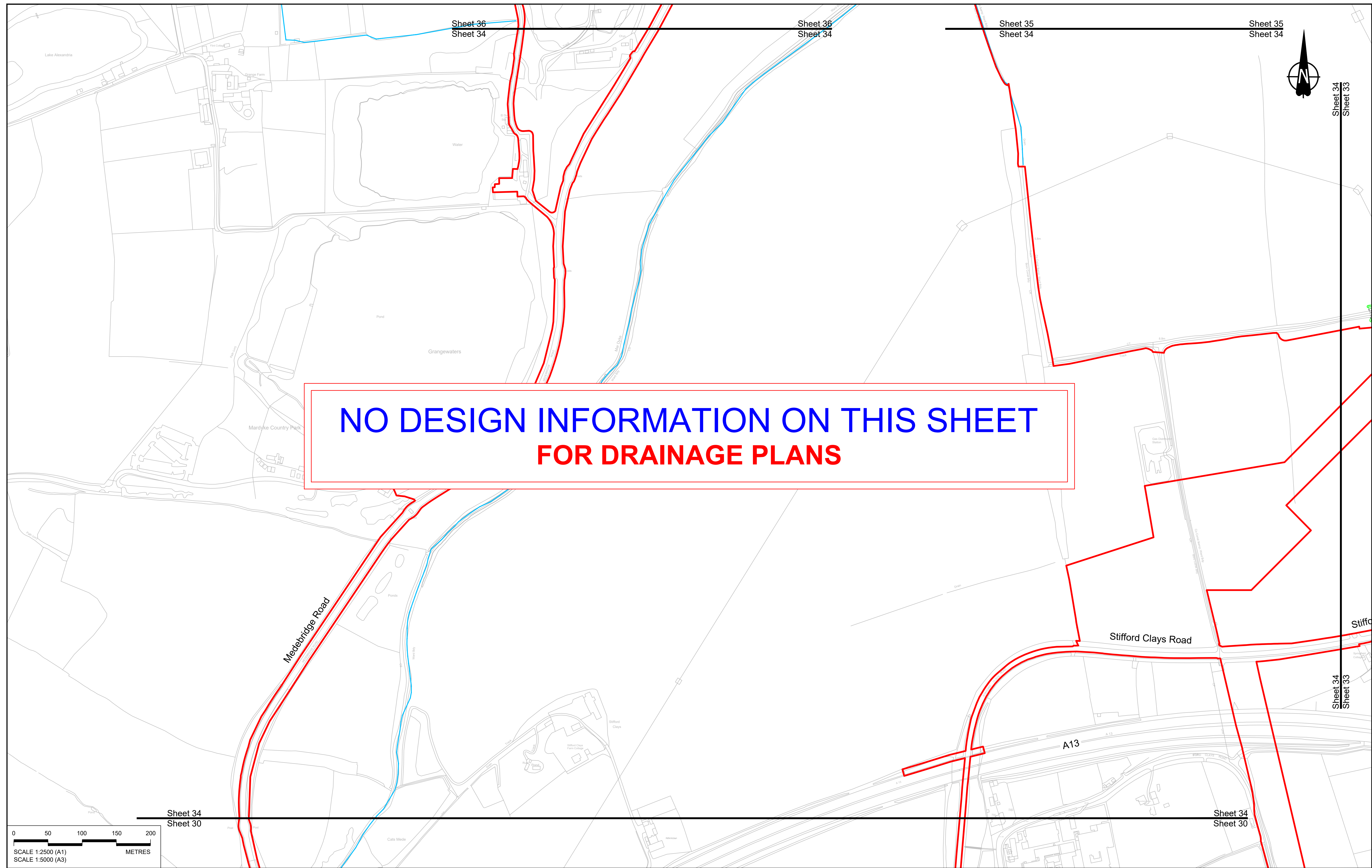
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NOTES:					
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LEGEND:					
BOUNDARIES		PROPOSED DRAINAGE		CATCHMENT AREAS AND OUTFALLS	
—	Order Limits	---	Watercourse diversion	---	Catchment for Work No. 8F
- - -	Local Authority boundary	---	Infiltration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



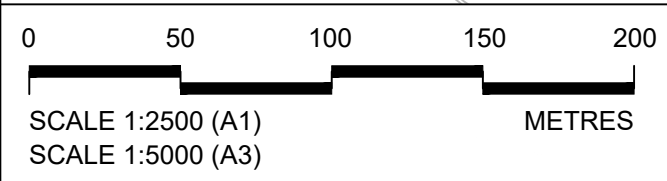
Client
national highways

Project
LOWER THAMES CROSSING

Status	DCO Application	Original Size	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

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LEGEND:

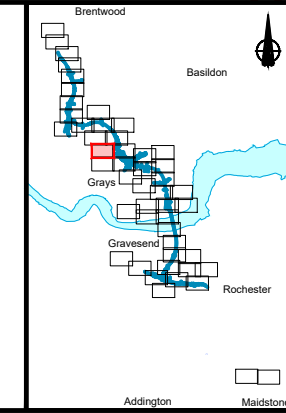
BOUNDARIES

- Order Limits
- Local Authority boundary
- Existing watercourse

PROPOSED DRAINAGE

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

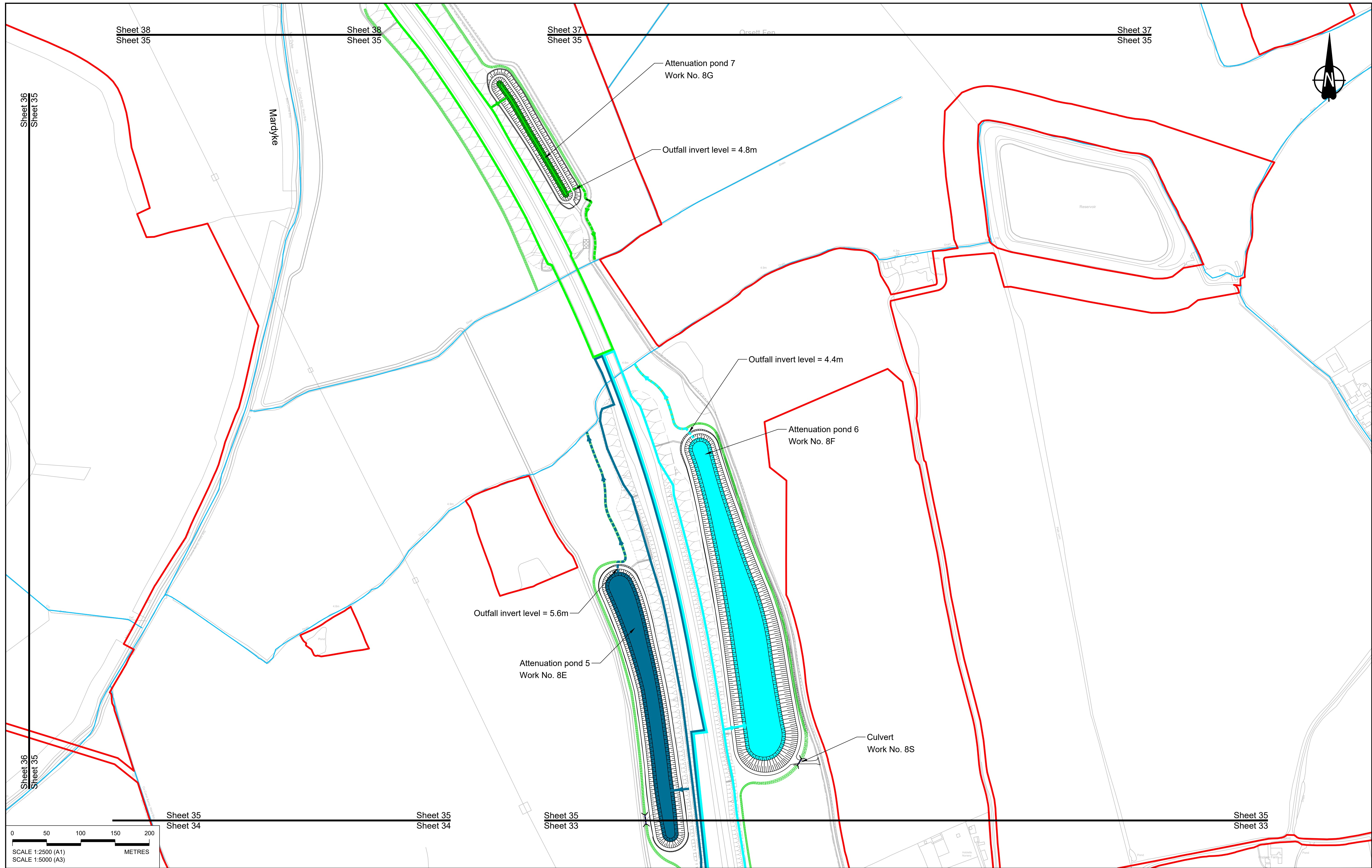
- Ditch
- Culvert or pipe
- P.s.
- Pumping station
- Containment for contaminated water from tunnel low point sump



Client: **national highways**

Project: **LOWER THAMES CROSSING**

Status	DCO Application	Original Size	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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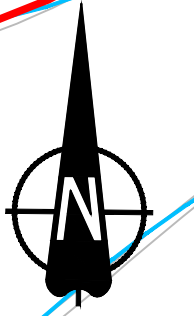
Sheet 36
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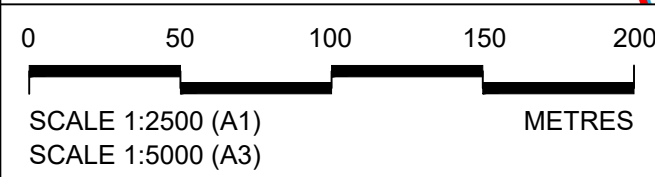


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P01	SB	19/10/2022	DCO Application	LY	BB	ASB
Rev	Status	Rev. Date	Purpose of revision	Drawn	Chck'd	Apprv'd

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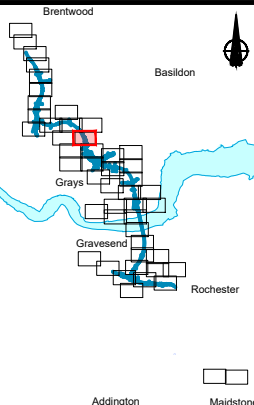
LEGEND:
BOUNDARIES
 - - - Order Limits
 - - - Local Authority boundary
 - - - Existing watercourse

PROPOSED DRAINAGE
 - - - Watercourse diversion
 [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] Outfall to Work No. 8F
 [Symbol] Discharge to existing drainage network or watercourse for Work No. 8F
 [Symbol] Catchment for Work No. 8E
 [Symbol] Outfall to Work No. 8E

[Symbol] Discharge to existing drainage network or watercourse for Work No. 8E
 [Symbol] Catchment for Work No. 8G
 [Symbol] Outfall to Work No. 8G
 [Symbol] 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		
Drawing Number	HE540039-CJV-BOP-SZZ_DN100000 -DR-CD-10032		
		Scale	1:2500

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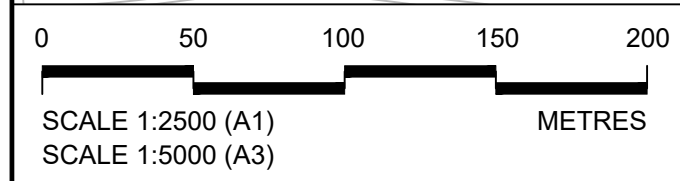
Sheet 38
Sheet 36

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Sheet 36

Sheet 36
Sheet 35



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FOR DRAINAGE PLANS**



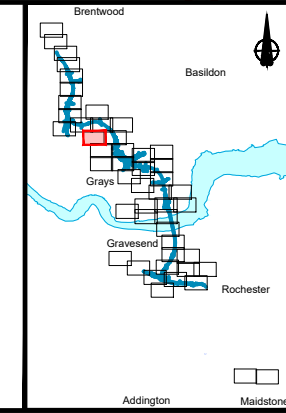
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P01	SB	19/10/2022	DCO Application	LY	BB	ASB
Rev	Status	Rev. Date	Purpose of revision	Drawn	Check'd	Appr'd

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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



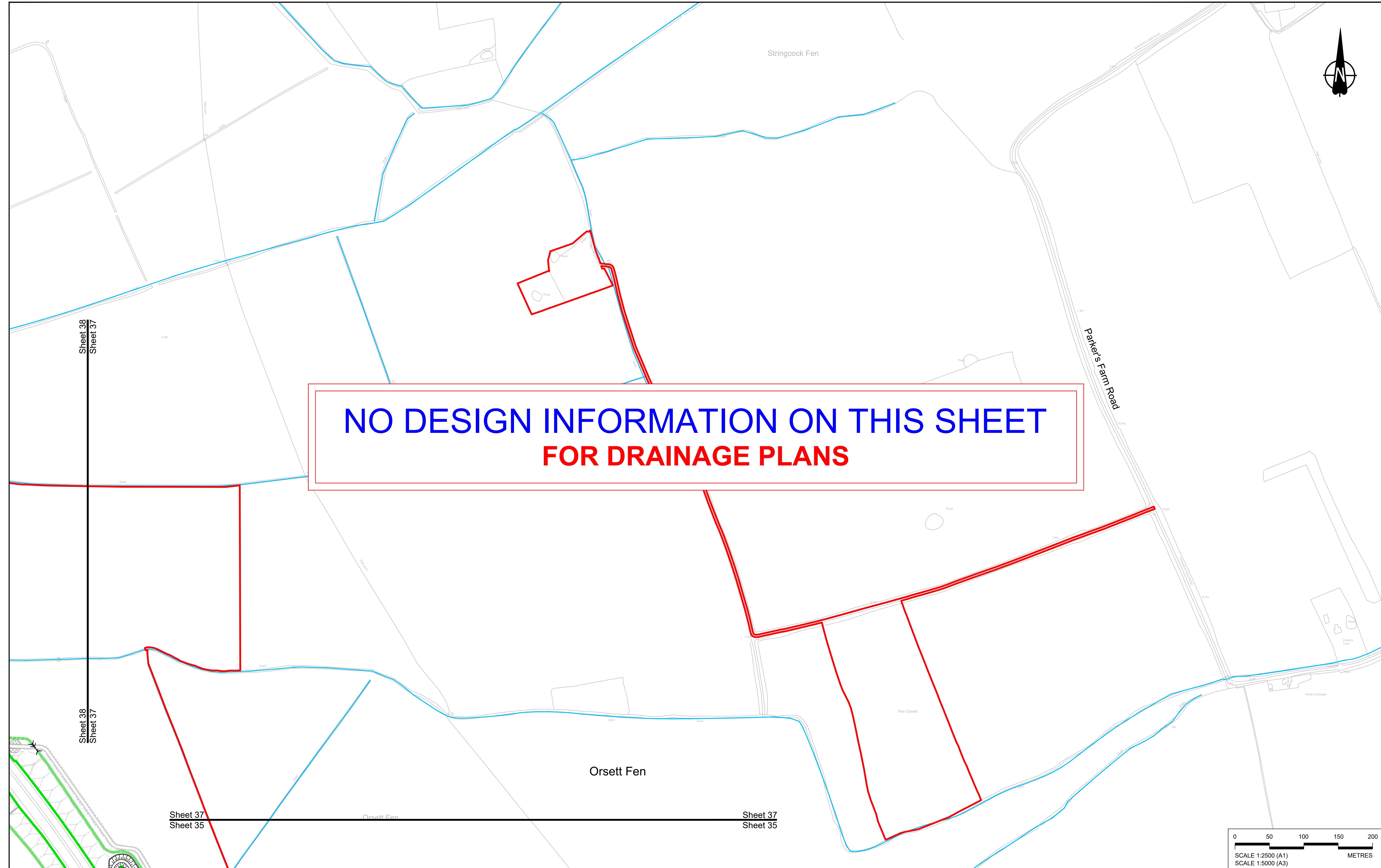
national highways

Client

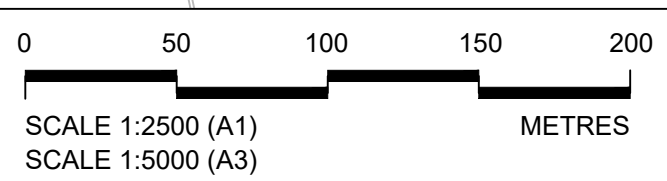
Project

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

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LEGEND:

BOUNDARIES

- Order Limits
- Local Authority boundary
- Existing watercourse

PROPOSED DRAINAGE

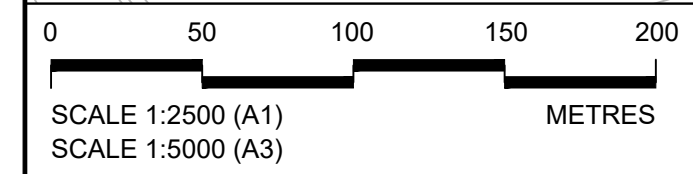
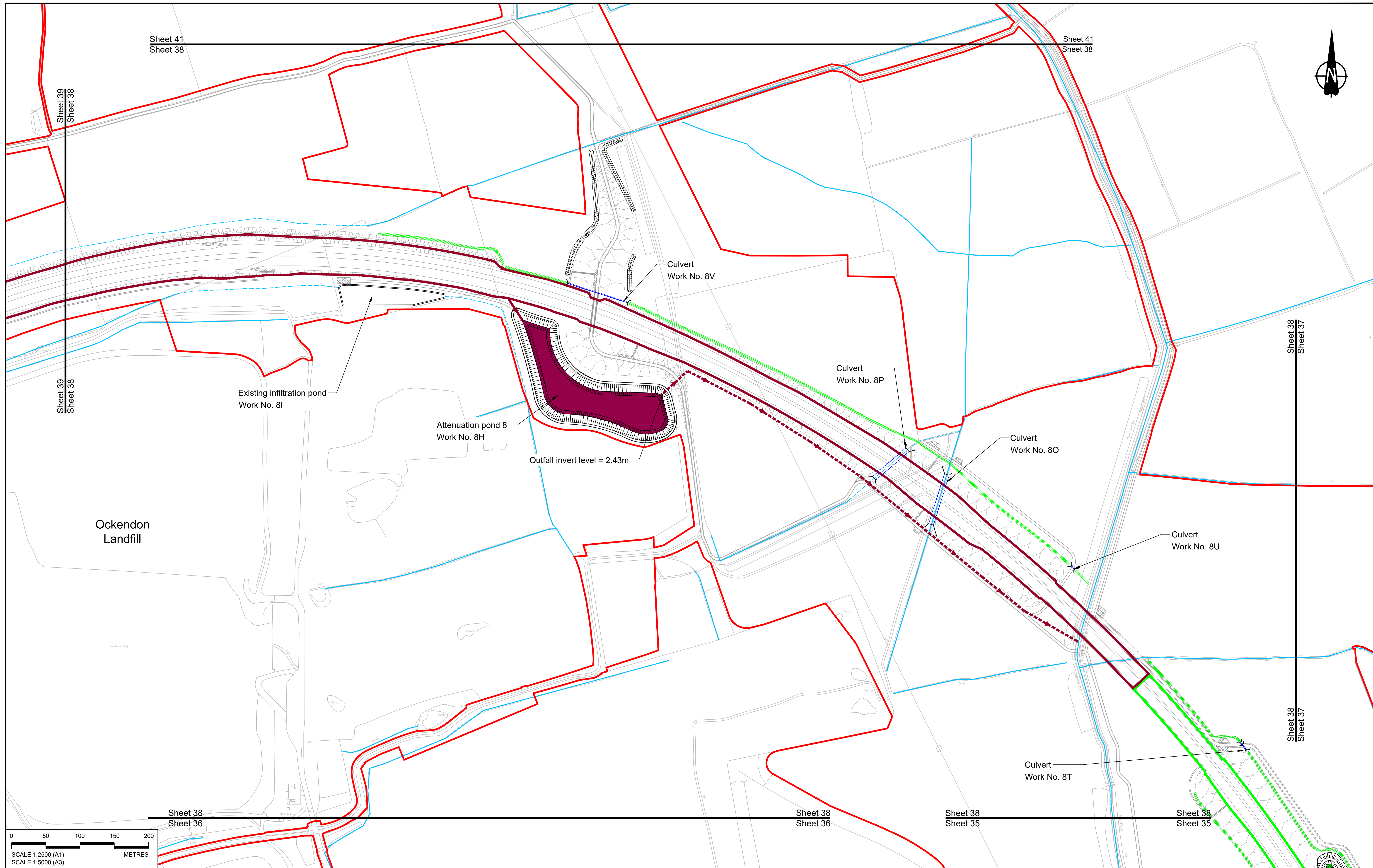
- Watercourse diversion
- Infiltration basin, attenuation pond, infiltration pond
- Swale
- Ditch
- Culvert or pipe
- P.S. Pumping station
- Containment for contaminated water from tunnel low point sump



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

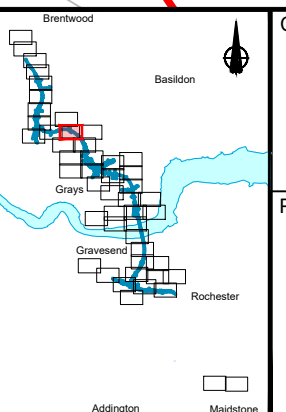
- Order Limits
- Local Authority boundary
- Existing watercourse

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

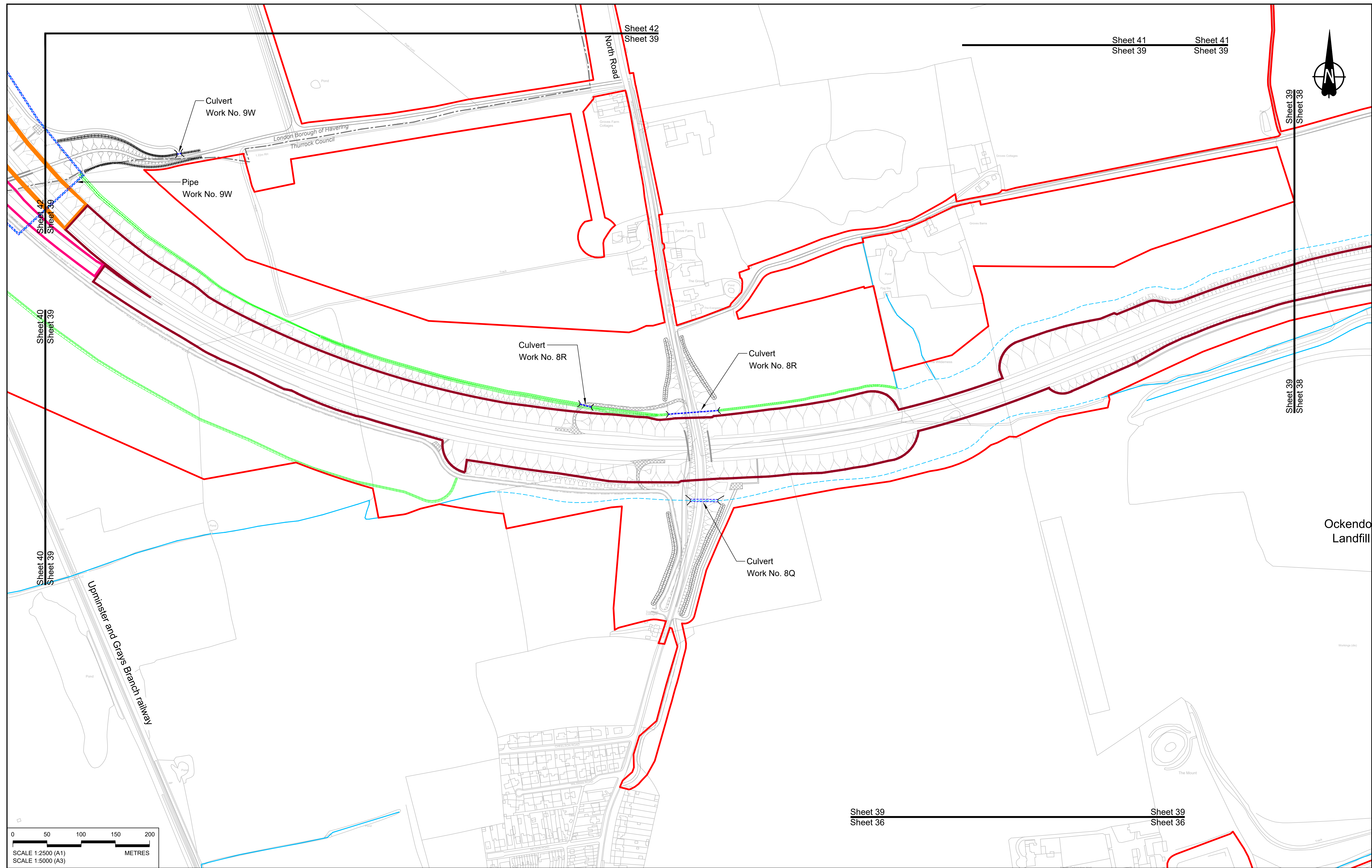
- Catchment for Work No. 8G
- Catchment for Work No. 8H
- Outfall to Work No. 8H
- Discharge to existing drainage network or watercourse for Work No. 8H



Client: **national highways**

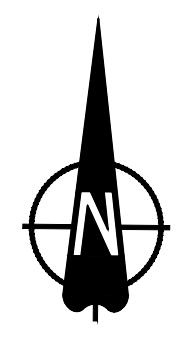
Project: **LOWER THAMES CROSSING**

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		



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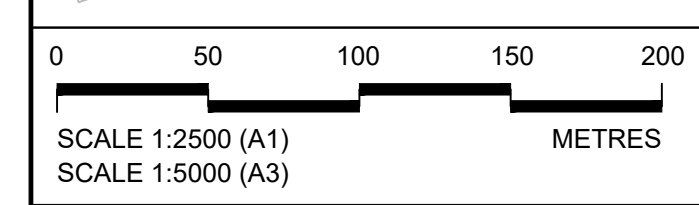
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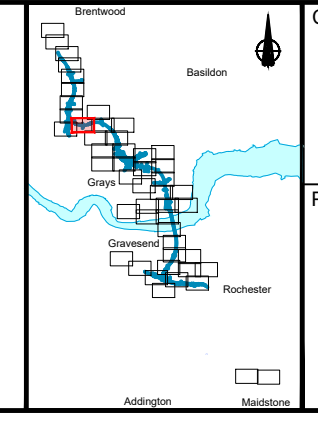
P01	SB	19/10/2022	DCO Application	LY	BB	ASB
Rev	Status	Rev. Date	Purpose of revision	Drawn	Chck'd	Apprv'd

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
 [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. 8H
 [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 39		
Drawing Number	HE540039-CJV-BOP-SZZ_DN100000 -DR-CD-10036		
		Scale	1:2500

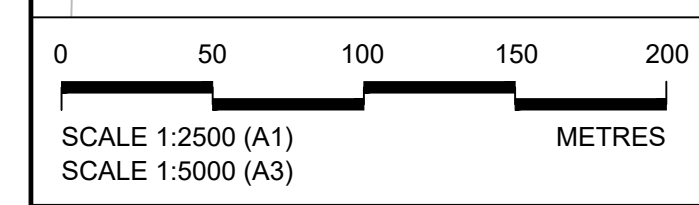
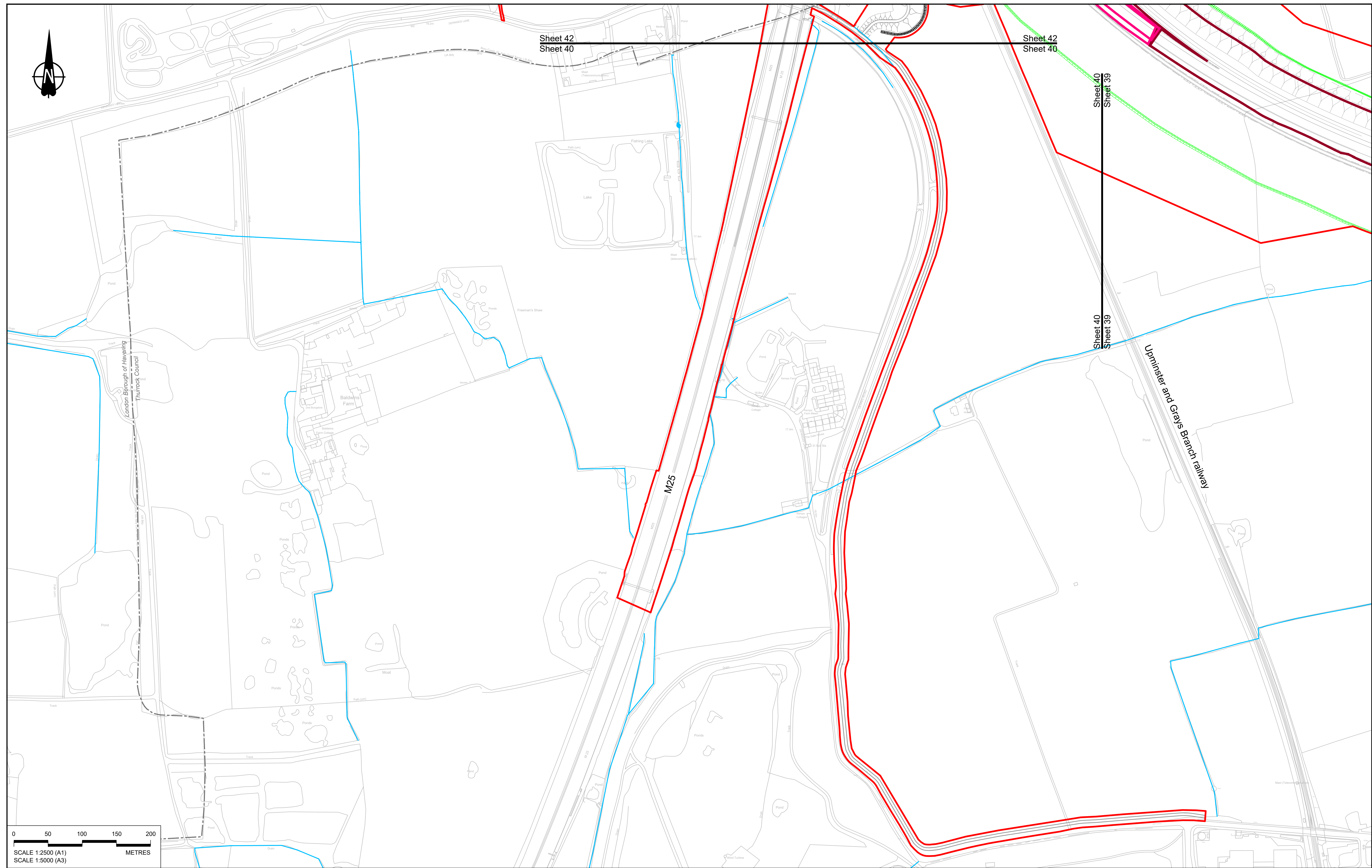


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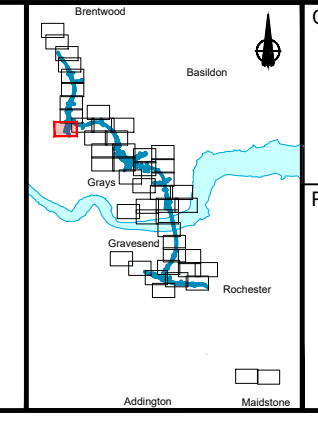
P01	SB	19/10/2022	DCO Application	LY	BB	ASB
Rev	Status	Rev. Date	Purpose of revision	Drawn	Check'd	Apprv'd

NOTES:

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LEGEND:

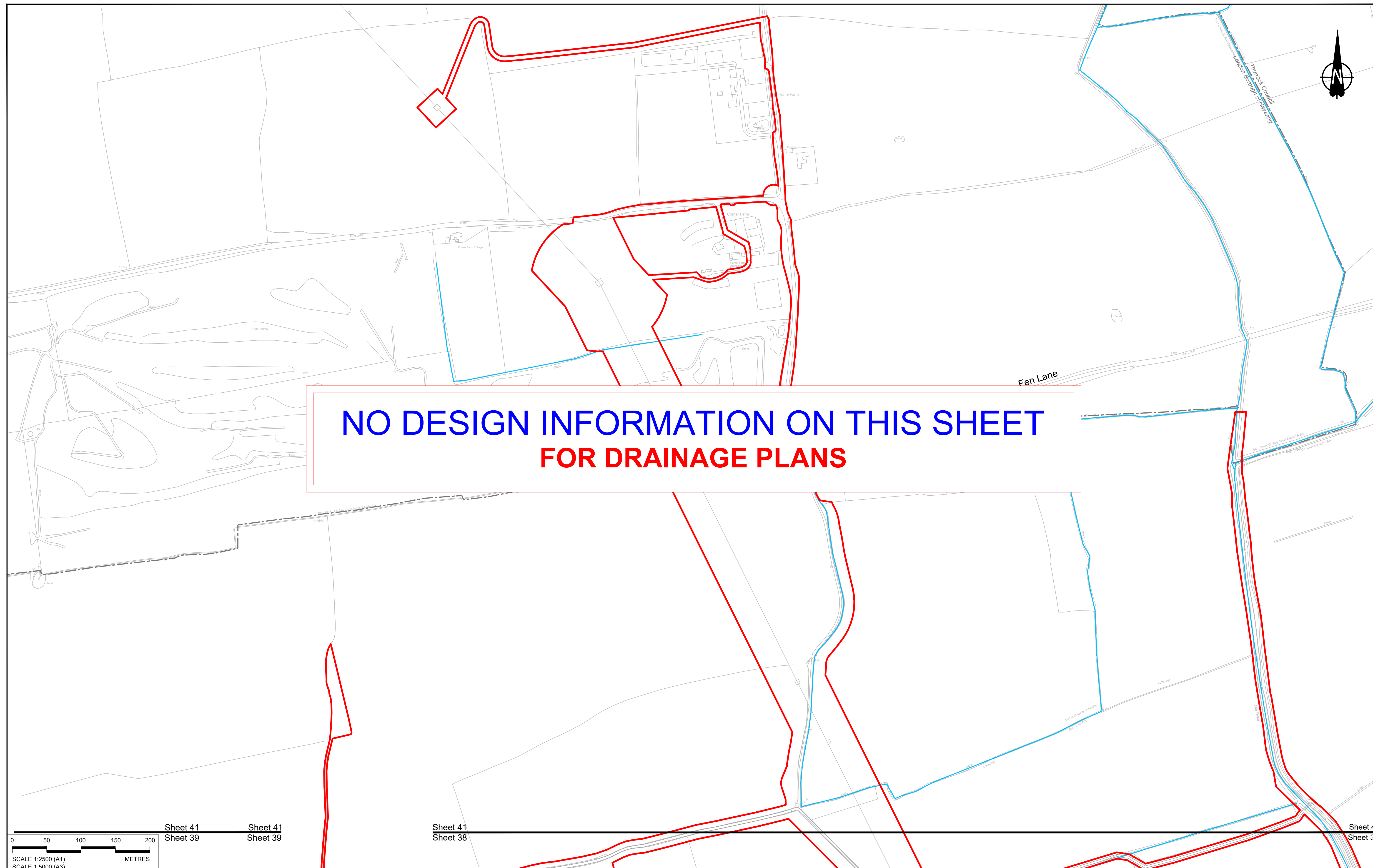
BOUNDARIES		PROPOSED DRAINAGE	
	Order Limits		Watercourse diversion
	Local Authority boundary		Infiltration basin, attenuation pond, infiltration pond
	Existing watercourse		Swale
			Ditch
			Culvert or pipe
			P.S. Pumping station
			Containment for contaminated water from tunnel low point sump



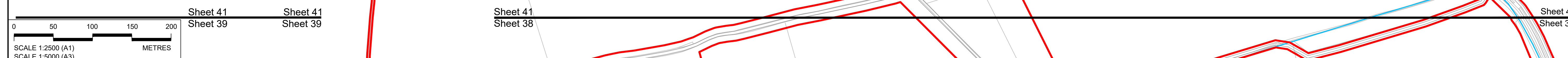
Client:

Project: **LOWER THAMES CROSSING**

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



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

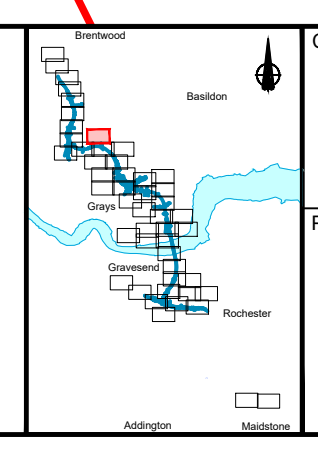


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P01	SB	19/10/2022	DCO Application	LY	BB	ASB
Rev	Status	Rev. Date	Purpose of revision	Drawn	Chck'd	Apprv'd

NOTES:

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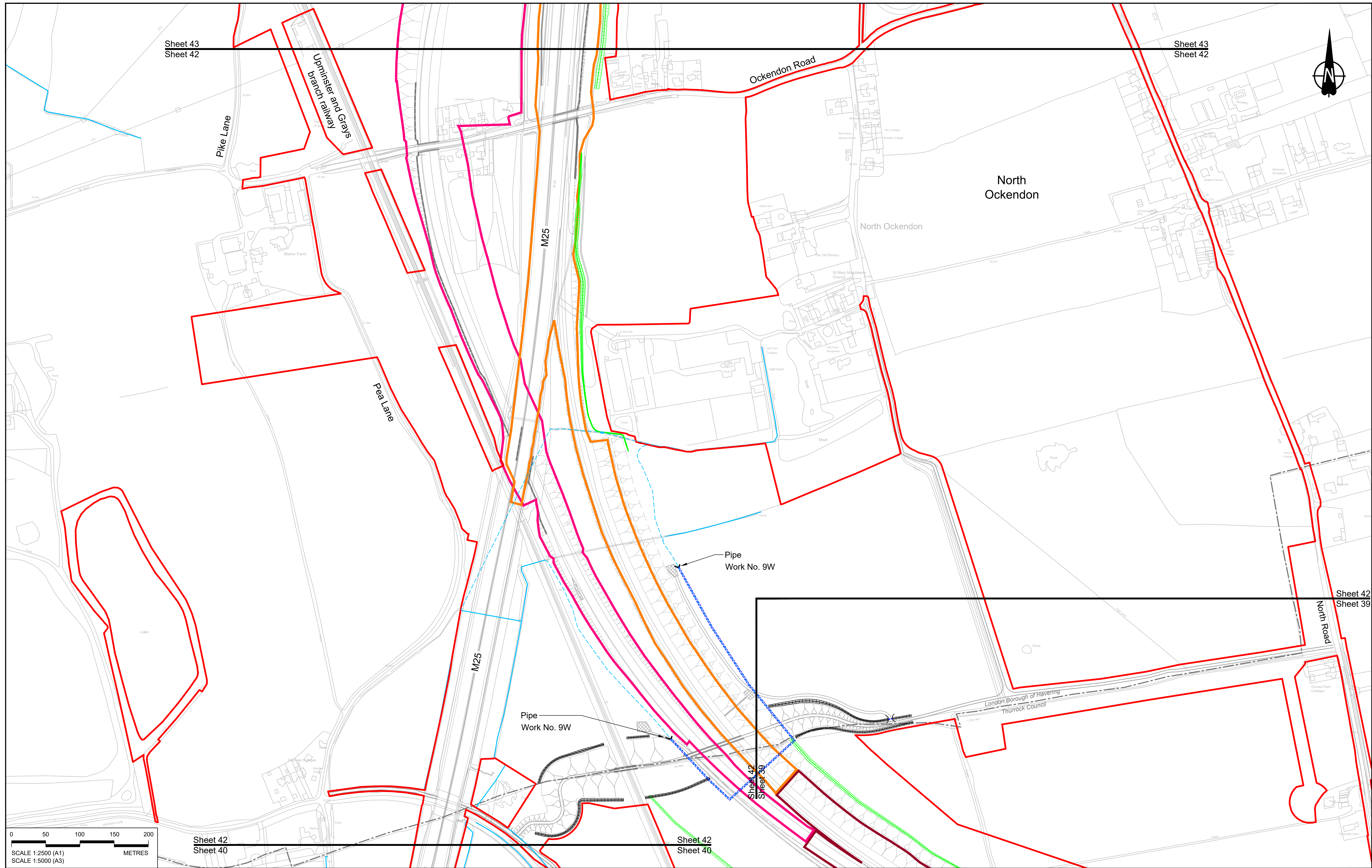
LEGEND:	
BOUNDARIES	
	Order Limits
	Local Authority boundary
	Existing watercourse
PROPOSED DRAINAGE	
	Watercourse diversion
	Infiltration basin, attenuation pond, infiltration pond
	Swale
	Ditch
	Culvert or pipe
	Pumping station
	Containment for contaminated water from tunnel low point sump



Client: **national highways**

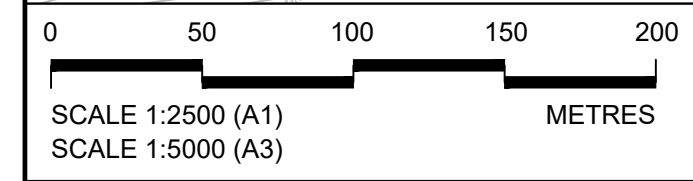
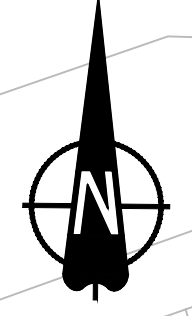
Project: **LOWER THAMES CROSSING**

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

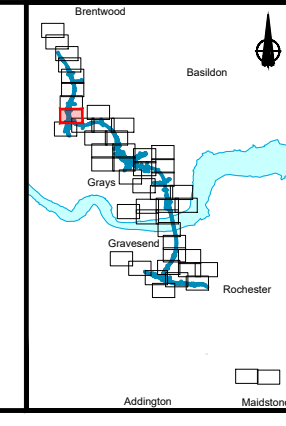
NOTES:
 1. The proposed works shown are illustrative only and will be subject to change as part of detailed design development. Any changes will be limited to being within the constraints included in the Development Consent Order (application document reference TR010032/APP/3.1).
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LEGEND: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

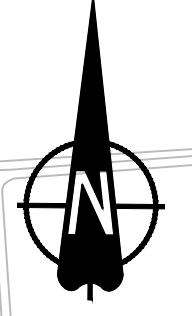
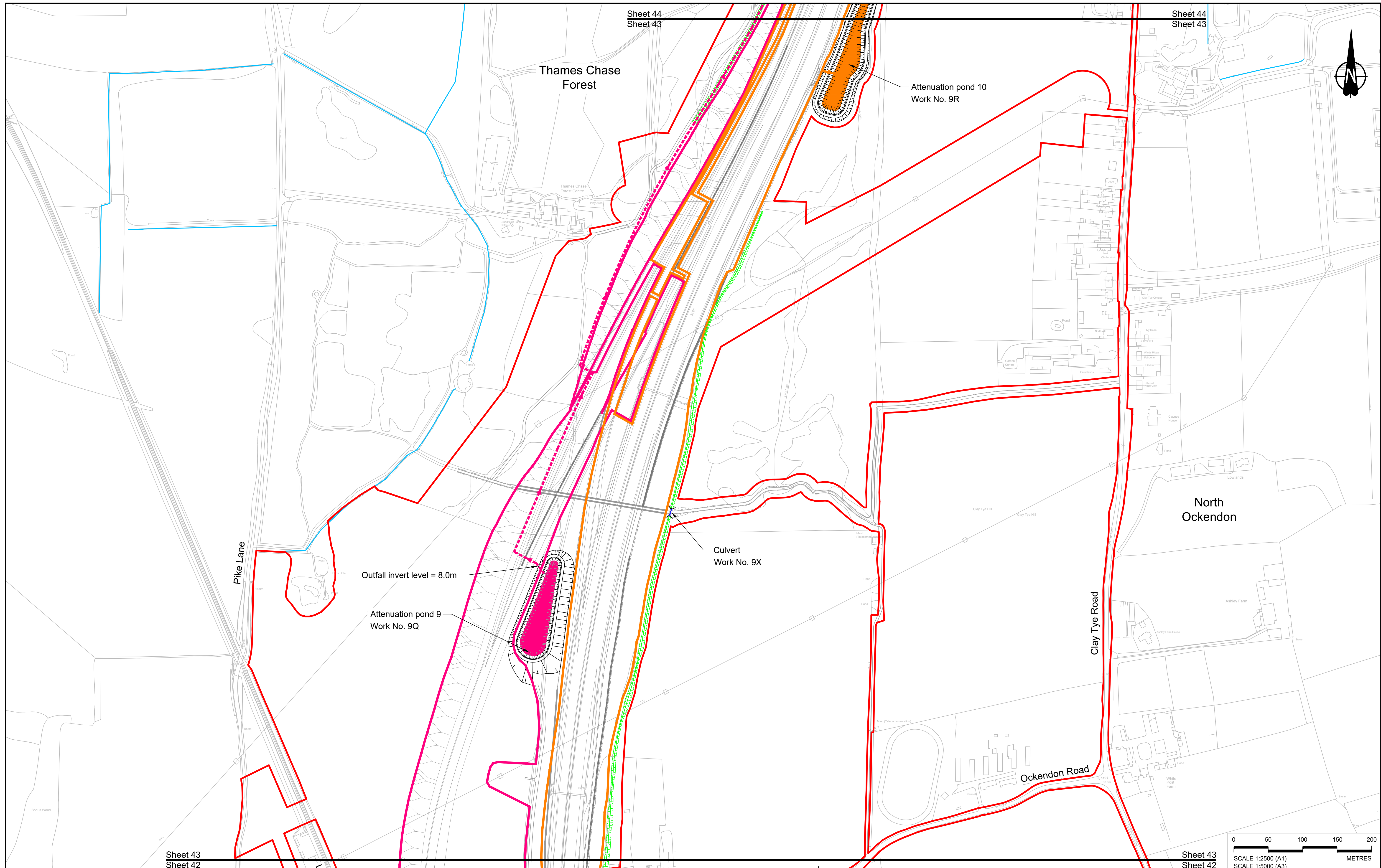
CATCHMENT AREAS AND OUTFALLS
 [Symbol] Catchment for Work No. 9Q
 [Symbol] Catchment for Work No. 9R



Client: **national highways**

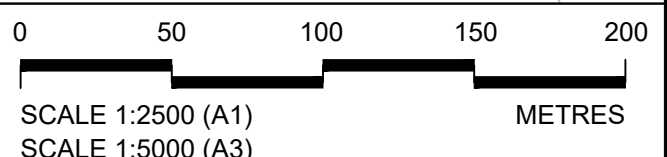
Project: **LOWER THAMES CROSSING**

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



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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.

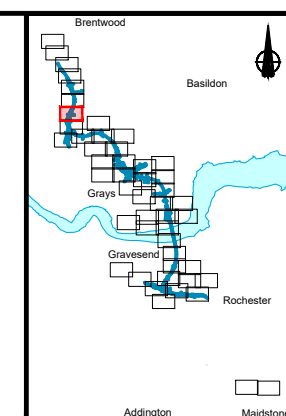
LEGEND:

- 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

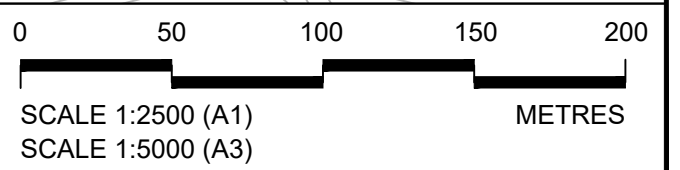
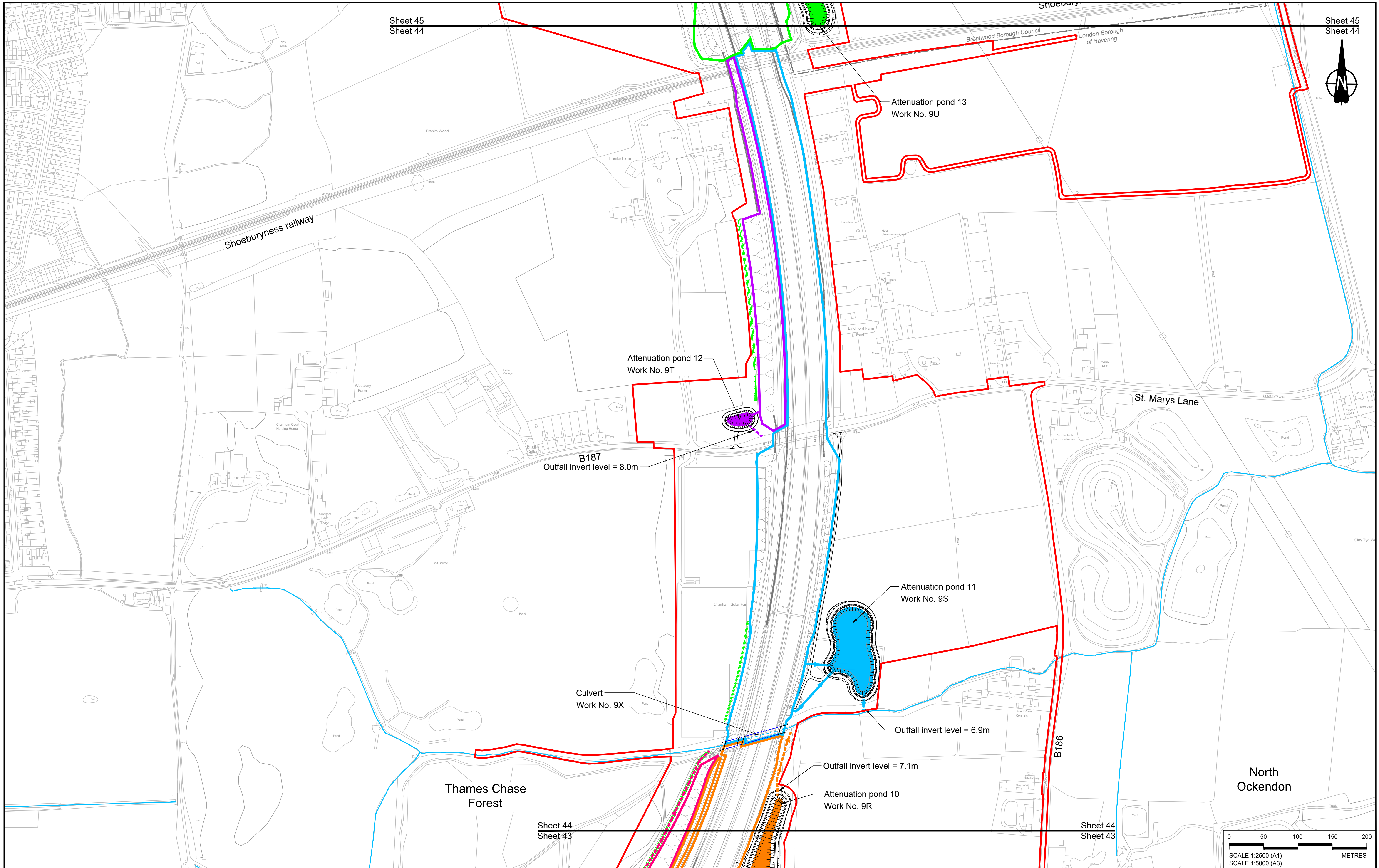
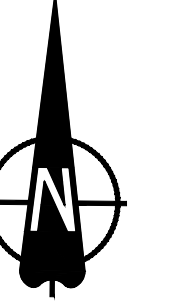
- CATCHMENT AREAS AND OUTFALLS**
- Catchment for Work No. 9Q
 - Outfall to Work No. 9Q
 - Discharge to existing drainage network or watercourse for Work No. 9Q
 - Outfall to Work No. 9R
 - Catchment for Work No. 9R



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

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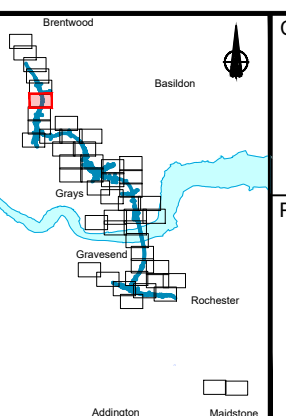
BOUNDARIES
 Order Limits
 Local Authority boundary
 Existing watercourse

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

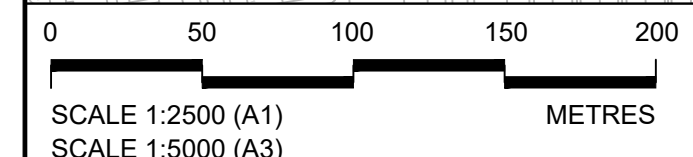
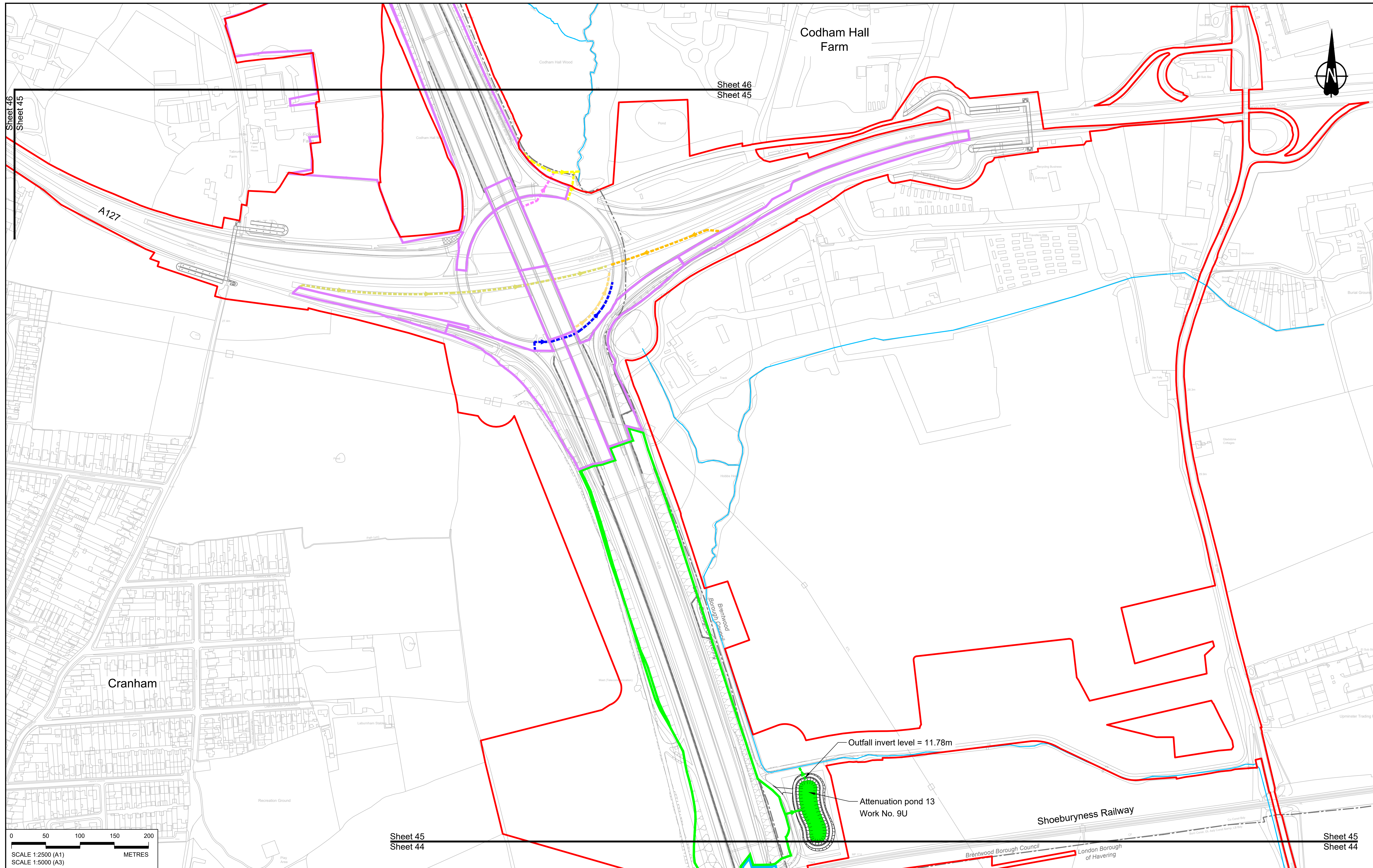
CATCHMENT AREAS AND OUTFALLS
 Catchment for Work No. 9Q
 Outfall to Work No. 9Q
 Discharge to existing drainage network or watercourse for Work No. 9Q
 Catchment for Work No. 9R
 Outfall to Work No. 9R
 Discharge to existing drainage network or watercourse for Work No. 9R

Catchment 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



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 44		
Drawing Number	HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10042		
		Scale	1:2500



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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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LEGEND:

BOUNDARIES

- Order Limits
- Local Authority boundary
- Existing watercourse

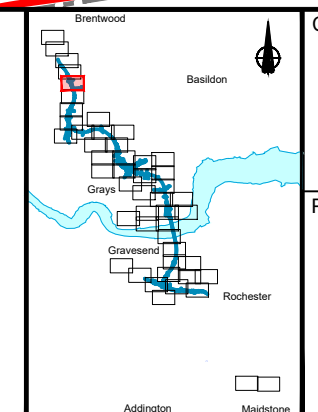
PROPOSED DRAINAGE

- 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

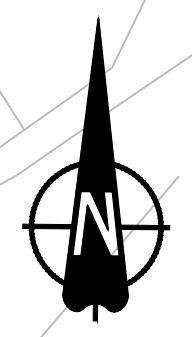
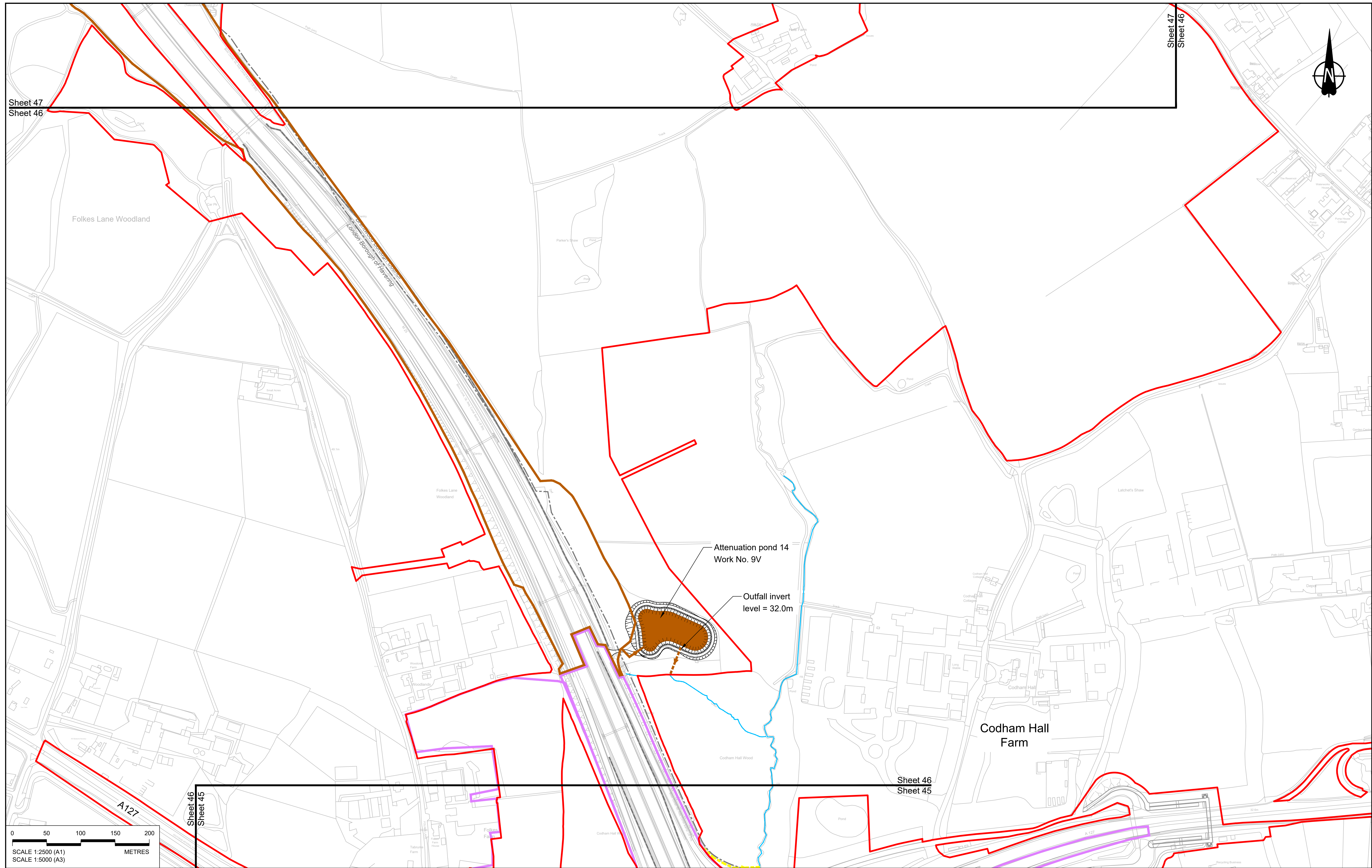
- Existing Catchments
- Discharge 1 to existing drainage network
- Discharge to existing drainage network or watercourse for Work No. 9U
- Outfall to Work No. 9U
- Discharge 2 to existing drainage network
- Discharge 3 to existing drainage network
- Discharge 4 to existing drainage network
- Discharge 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	A1	Revision	P01
Application Document Number	TR010032/APP/2.16	Scale	1:2500		
Drawing title	DRAINAGE PLANS REGULATION 5(2)(o) SHEET 45				
Drawing Number	HE540039-CJV-BOP-SZZ_DN100000 -DR-CD-10043				



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Folkes Lane Woodland

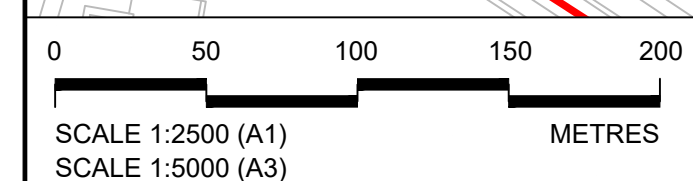
Attenuation pond 14
Work No. 9V
Outfall invert level = 32.0m

Codham Hall Farm

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NOTES:

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LEGEND:

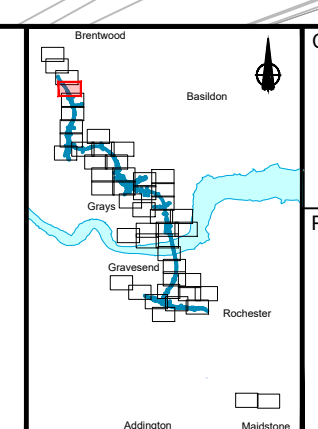
- BOUNDARIES**
- Order Limits
 - Local Authority boundary
 - Existing watercourse

- 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**
- 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

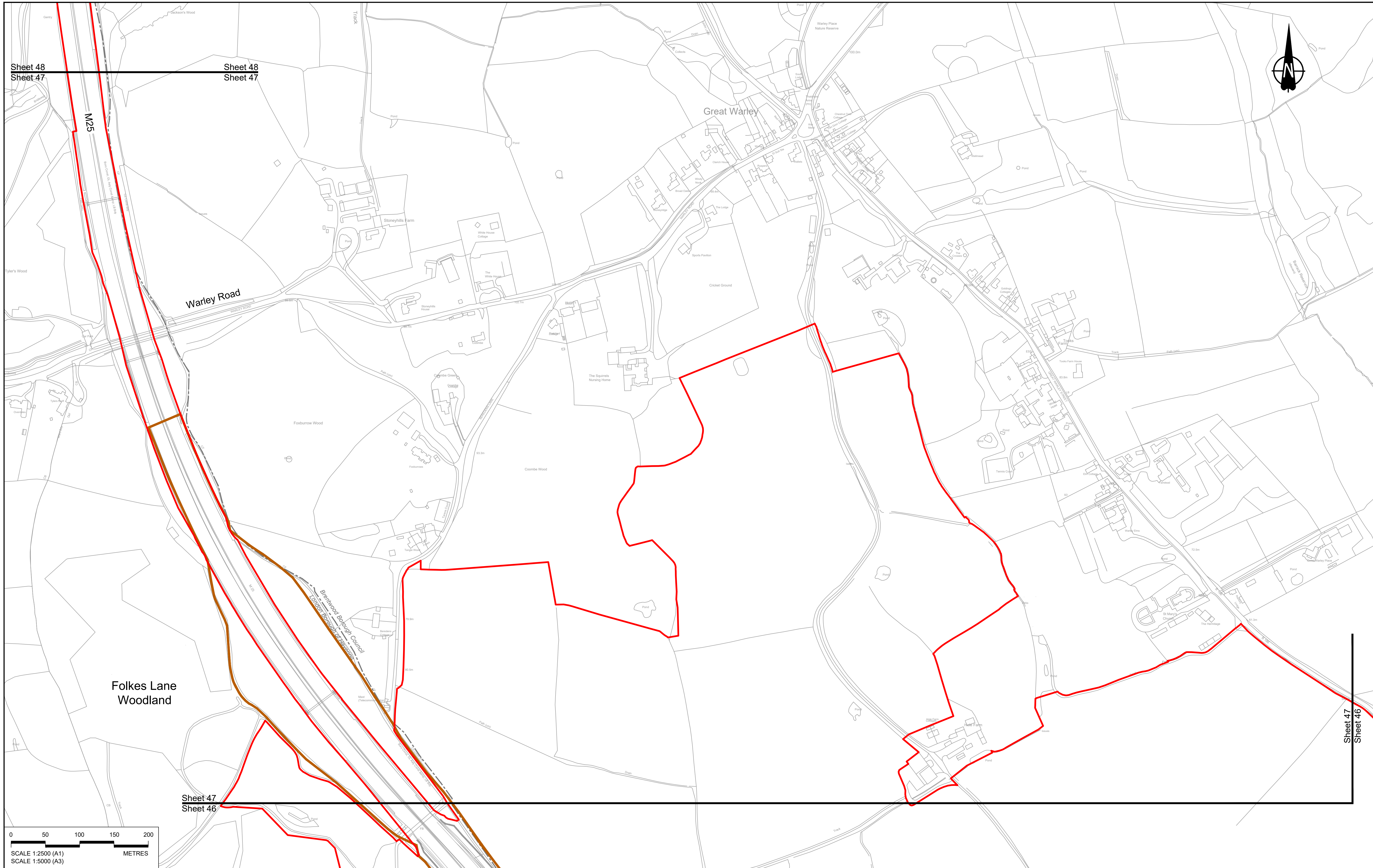
P01	SB	19/10/2022	DCO Application	LY	BB	ASB
Rev	Status	Rev. Date	Purpose of revision	Drawn	Check'd	Apprv'd



Client: **national highways**

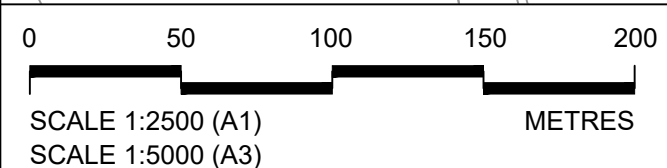
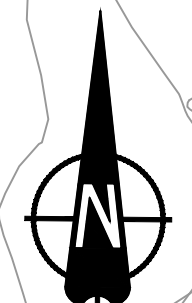
Project: **LOWER THAMES CROSSING**

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		



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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

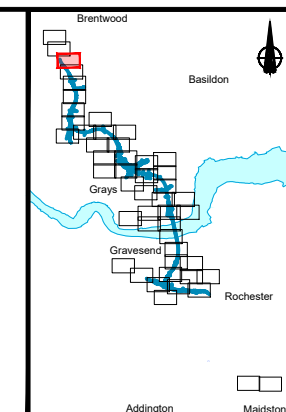
NOTES:
 1. The proposed works shown are illustrative only and will be subject to change as part of detailed design development. Any changes will be limited to being within the constraints included in the Development Consent Order (application document reference TR010032/APP/3.1).
 2. These plans should be read in conjunction with Schedule 1 (Authorised Development) of the Development Consent Order (application document reference TR010032/APP/3.1).
 3. 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.

LEGEND:

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. Pumping station
	Containment for contaminated water from tunnel low point sump

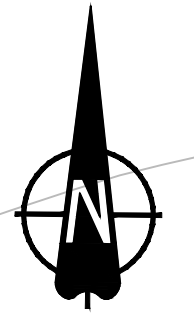
	Ditch
	Culvert or pipe
	P.S. Pumping station
	Containment for contaminated water from tunnel low point sump



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 47				
Drawing Number	HE540039-CJV-BOP-SZZ_DN100000 -DR-CD-10045				



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Sheet 48

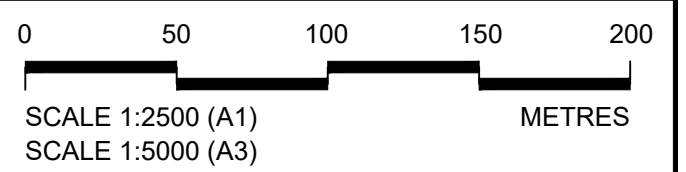
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Brentwood Borough Council
London Borough of Havering

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

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Sheet 48
Sheet 47



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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.

LEGEND:

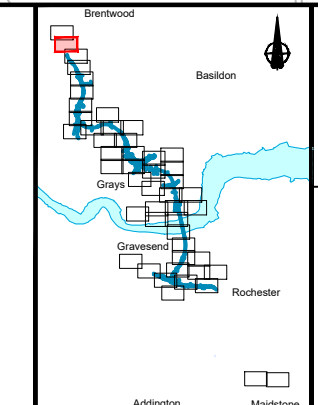
BOUNDARIES

- 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

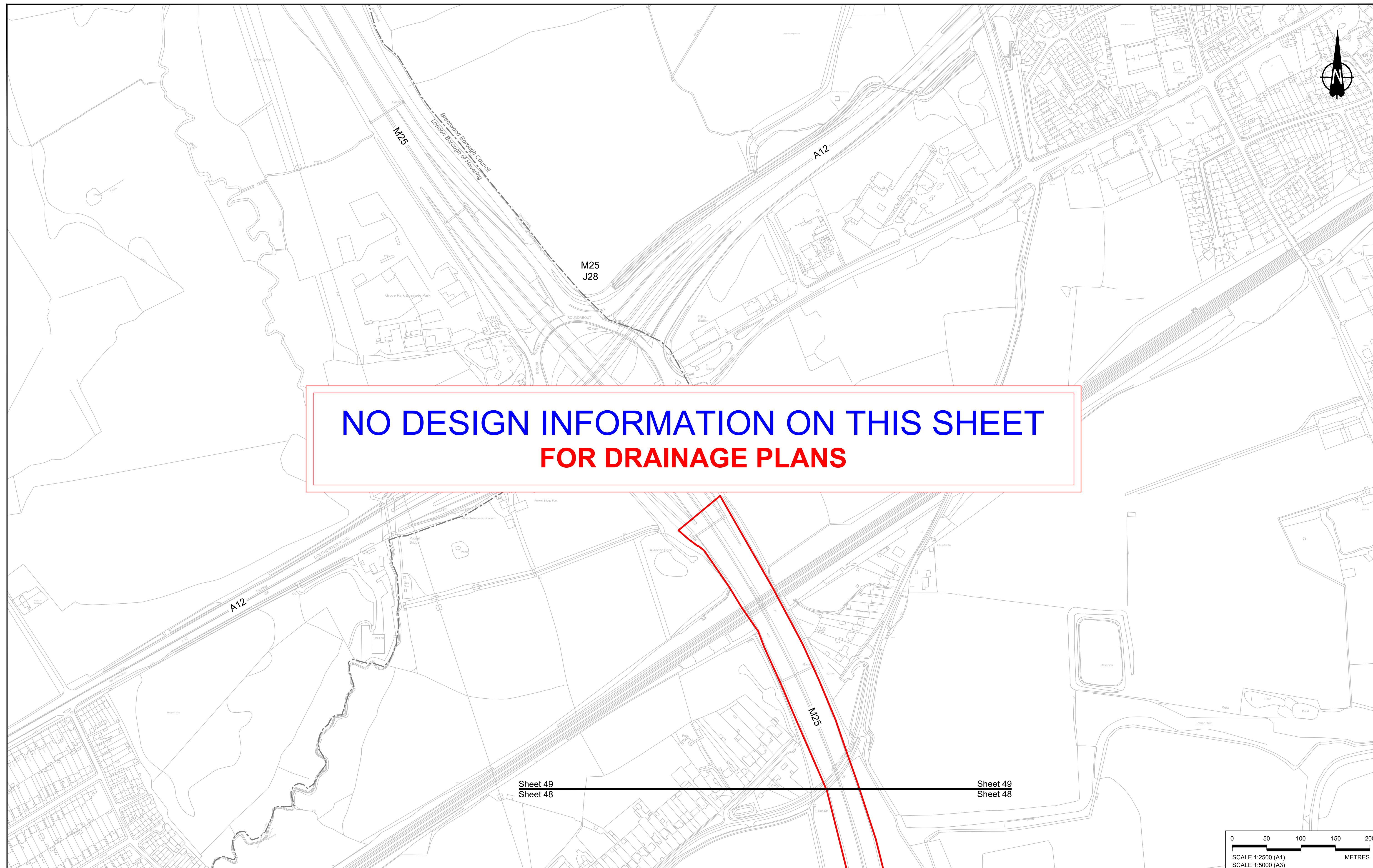
P01	S8	19/10/2022	DCO Application	LY	BB	ASB
Rev	Status	Rev. Date	Purpose of revision	Drawn	Chkd	Apprvd



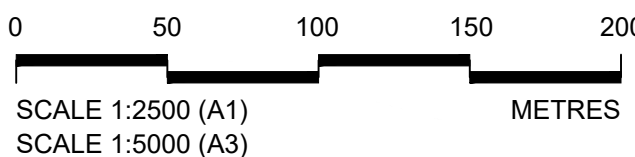
Client
national highways

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

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BOUNDARIES		PROPOSED DRAINAGE	
	Order Limits		Watercourse diversion
	Local Authority boundary		Infiltration basin, attenuation pond, infiltration pond
	Existing watercourse		Swale
			Ditch
			Culvert or pipe
			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_DN100000 -DR-CD-10047.dwt
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