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: December 2023 Deleted: November

DEADLINE: 9 Deleted: 7

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

VERSION: 5.0 Deleted: 4

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
5.0	11 December 2023	Deadline 9

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Lower Thames Crossing

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

List of contents

Page number

1 Introduction 1
2 Schedule of Plans included in this application document 4

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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)

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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**].

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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**].

1.1.18 These plans have been updated for Deadline 9 to include all agreed proposed changes and amendments throughout Examination.

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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	P06
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 1	TR010032/APP/2.16	P03
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 2	TR010032/APP/2.16	P03
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 3	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 4	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 5	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 6	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 7	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 8	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 9	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 10	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 11	TR010032/APP/2.16	P02

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Document Title	Document Number	Revision
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 12	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 13	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 14	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 15	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 16	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 17	TR010032/APP/2.16	P03
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 18	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 19	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 20	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 21	TR010032/APP/2.16	P03
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 22	TR010032/APP/2.16	P03
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 23	TR010032/APP/2.16	P04
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 24	TR010032/APP/2.16	P03

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Document Title	Document Number	Revision
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 25	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 26	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 27	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 28	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 29	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 30	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 31	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 32	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 33	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 34	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 35	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 36	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 37	TR010032/APP/2.16	P02

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Document Title	Document Number	Revision
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 38	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 39	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 40	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 41	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 42	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 43	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 44	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 45	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 46	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 47	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 48	TR010032/APP/2.16	P02
DRAINAGE PLANS REGULATION 5(2)(o) SHEET 49	TR010032/APP/2.16	P02

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NO DESIGN INFORMATION ON THIS SHEET

FOR DRAINAGE PLANS

Fort Road

Brennan Road

Tilbury

Sheet 21
Sheet 20

Sheet 21
Sheet 17

Sheet 21
Sheet 17

Fort Road

0 50 100 150 200

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

METRES

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Rev	Status	Rev. Date	Purpose of revision	Drawn	Chck'd	Apprv'd
P01	S8	19/10/2022	DCO Application	LY	BB	ASB
P02	S8	17/11/2023	Deadline 7	LY	BB	ASB
P03	S8	11/12/2023	Deadline 9	SA	RO	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

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 21
Drawing Number	HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10018

HE540039-CJV-BOP-SZZ_DN000000_-DR-CD-10018.dwg

NO DESIGN INFORMATION ON THIS SHEET

FOR DRAINAGE PLANS

East Tilbury Marshes

East Tilbury

Station Road

Mucking Flats and Marshes
SPA, SSSI and Ramsar

Sheet 23
Sheet 22

Sheet 22
Sheet 19

Sheet 22
Sheet 19

0 50 100 150 200

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

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Rev	Status	Rev. Date	Purpose of revision	Drawn	Chck'd	Apprv'd
P01	S8	19/10/2022	DCO Application	LY	BB	ASB
P01	S8	19/09/2023	Deadline 4	MS	RO	ASB
P03	S8	11/12/2023	Deadline 9	SA	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

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 22

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

HE540039-CJV-BOP-SZZ_DN000000_-DR-CD-10019.dwt

Sheet 25
Sheet 23

Sheet 24
Sheet 23

Sheet 24
Sheet 23

Rectory Road

Sheet 25
Sheet 23

Church Road

Low Street Lane

Tilbury Loop Railway

Reservoir
Work No. 5K

Attenuation basin 1
Work No. 5J
Outfall invert level = 0.5m

Culvert
Work No. 5N

Sheet 23
Sheet 22

Sheet 23
Sheet 22

Sheet 23
Sheet 20

Sheet 23
Sheet 20

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

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Rev	Status	Rev. Date	Purpose of revision	Drawn	Chck'd	Apprv'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
P04	S8	11/12/2023	Deadline 9	SA	RO	ASB

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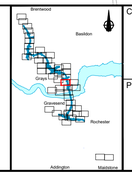
BOUNDARIES
- Order Limits
- Local Authority boundary
- Existing watercourse

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

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: P04
Application Document Number: TR010032/APP/2.16
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Drawing Number: HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10020

HE540039-CJV-BOP-SZZ_DN000000_-DR-CD-10020.dwg

Sheet 27
Sheet 24

Sheet 27
Sheet 24

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

Sheet 25
Sheet 24

Sheet 25
Sheet 24

Sheet 24
Sheet 23

Sheet 24
Sheet 23

0 50 100 150 200

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

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Rev	Status	Rev. Date	Purpose of revision	Drawn	Chck'd	Apprv'd
P01	S8	19/10/2022	DCO Application	LY	BB	ASB
P02	S8	19/09/2023	Deadline 4	MS	RO	ASB
P03	S8	11/12/2023	Deadline 9	SA	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

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: P03
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

HE540039-CJV-BOP-SZZ_DN000000_-DR-CD-10021.dwt

adwell St Mary

Sheet 26
Sheet 25

Sheet 26
Sheet 25

Brentwood Road

Chadwell St Mary

Linford Road

Sheet 25
Sheet 24

Sheet 25
Sheet 24

Sheet 25
Sheet 23

Sheet 25
Sheet 23

Rectory Road

NO DESIGN INFORMATION ON THIS SHEET

FOR DRAINAGE PLANS

0 50 100 150 200

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

METRES

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Rev	Status	Rev. Date	Purpose of revision	Drawn	Chck'd	Apprv'd
P01	S8	19/10/2022	DCO Application	LY	BB	ASB
P02	S8	11/12/2023	Deadline 9	SA	RO	ASB

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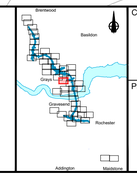
- Swale
- Ditch
- Culvert or pipe
- P.S. Pumping station
- Containment for contaminated water from tunnel low point sump



Client: national highways

Project: LOWER THAMES CROSSING

Status: DCO 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 25
Drawing Number: HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10022

HE540039-CJV-BOP-SZZ_DN000000_-DR-CD-10022.dwt

Sheet 29
Sheet 26

Sheet 29
Sheet 26

Sheet 26
Sheet 28

Sheet 26
Sheet 28

Sheet 26
Sheet 25

Sheet 26
Sheet 25

A1013

B188

B188

A1089

Brentwood Road

Chadwell St Mary

Chadwell St Mary

Chad

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
P01	S8	19/10/2022	DCO Application	LY	BB	ASB
P02	S8	11/12/2023	Deadline 9	SA	RO	ASB

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

0 50 100 150 200

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

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 26

Drawing Number: HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10023

HE540039-CJV-BOP-SZZ_DN000000_-DR-CD-10023.dwt

Sheet 31
Sheet 27

Sheet 31
Sheet 27

Sheet 32
Sheet 27

Sheet 32
Sheet 27

Sheet 28
Sheet 27

Sheet 28
Sheet 27

Sheet 27
Sheet 24

Sheet 27
Sheet 24

Hoford Road

Culvert
Work No. 6H

Culvert
Work No. 6G

0 50 100 150 200
METRES

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

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Rev	Status	Rev. Date	Purpose of revision	Drawn	Chck'd	Apprv'd
P01	S8	19/10/2022	DCO Application	LY	BB	ASB
P02	S8	11/12/2023	Deadline 9	SA	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

CATCHMENT AREAS AND OUTFALLS
- Catchment 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 27

Drawing Number: HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10024

Sheet 32
Sheet 28

Sheet 32
Sheet 28

Sheet 29
Sheet 28

Sheet 29
Sheet 28

Sheet 28
Sheet 27

Sheet 28
Sheet 27

Sheet 26
Sheet 28

Sheet 26
Sheet 28

Orsett Golf Course

Brentwood Road

Chadwell St Mary

Hoford Road

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

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Rev	Status	Rev. Date	Purpose of revision	Drawn	Chck'd	Apprv'd
P01	S8	19/10/2022	DCO Application	LY	BB	ASB
P02	S8	11/12/2023	Deadline 9	SA	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

CATCHMENT AREAS AND OUTFALLS
- Catchment for Work No. 6E
- Catchment for Work No. 8F

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 28
Drawing Number: HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10025

HE540039-CJV-BOP-SZZ_DN000000_-DR-CD-10025.dwt

Sheet 33
Sheet 29

Sheet 33
Sheet 29

Sheet 30
Sheet 29

Sheet 29
Sheet 32

Sheet 29
Sheet 32

Sheet 29
Sheet 28

Sheet 29
Sheet 28

Sheet 30
Sheet 29

Sheet 29
Sheet 26

Sheet 29
Sheet 26

A13

A1089

A1013

B188

Heath Road

Orsett Heath

Swale 1

Swale 2

Swale 3

Infiltration basin 7
Work No. 7O

0 50 100 150 200
METRES

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

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P02	S8	11/12/2023	Deadline 9	SA	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

CATCHMENT AREAS AND OUTFALLS
- Catchment for Work No. 8F
- Catchment for Work No. 8E
- Catchment for Work No. 7O
- Outfall to Work No. 7O
- 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 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 29

Drawing Number: HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10026

HE540039-CJV-BOP-SZZ_DN000000_-DR-CD-10026.dwt

Sheet 34
Sheet 30

Sheet 34
Sheet 30

Sheet 30
Sheet 29

Sheet 30
Sheet 29

Medebridge Road

A13

A1012

North Stifford

Little Thurrock

William Edwards School and Sports College (secondary)

NO DESIGN INFORMATION ON THIS SHEET

FOR DRAINAGE PLANS

0 50 100 150 200

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

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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

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 30
Drawing Number: HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10027

HE540039-CJV-BOP-SZZ_DN000000_-DR-CD-10027.dwt

NO DESIGN INFORMATION ON THIS SHEET

FOR DRAINAGE PLANS

Sheet 32
Sheet 31

Sheet 32
Sheet 31

Sheet 31
Sheet 27

Sheet 31
Sheet 27

A13

A1013

Orsett

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Rev	Status	Rev. Date	Purpose of revision	Drawn	Chck'd	Apprv'd
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P02	S8	11/12/2023	Deadline 9	SA	RO	ASB

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- Order Limits
- Local Authority boundary
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PROPOSED DRAINAGE

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

0 50 100 150 200

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

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 31
Drawing Number: HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10028

HE540039-CJV-BOP-SZZ_DN000000_-DR-CD-10028.dwt

Orsett

Orsett Showground

Rectory Road

A13

Orsett Cock Junction

A1013

Orsett

Brentwood Road

Orsett Golf Course

Sheet 33 Sheet 32

Sheet 29 Sheet 32

Sheet 32 Sheet 31

Sheet 32 Sheet 27

Sheet 32 Sheet 28

Sheet 32 Sheet 28

0 50 100 150 200

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

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- 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

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 32

Drawing Number: HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10029

HE540039-CJV-BOP-SZZ_DN000000_-DR-CD-10029.dwt

Sheet 35
Sheet 33

Sheet 35
Sheet 33

Retention pond 3
Work No. 8E

Sheet 34
Sheet 33

Sheet 34
Sheet 33

Sheet 33
Sheet 32

Sheet 33
Sheet 32

Stifford Clays Road

A13

Orsett

Sheet 33
Sheet 29

Sheet 33
Sheet 29

0 50 100 150 200

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

METRES

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Rev	Status	Rev. Date	Purpose of revision	Drawn	Chck'd	Apprv'd
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- Ditch
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CATCHMENT AREAS AND OUTFALLS
- Catchment for Work No. 8F
- Catchment for Work No. 8E

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 33

Drawing Number: HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10030

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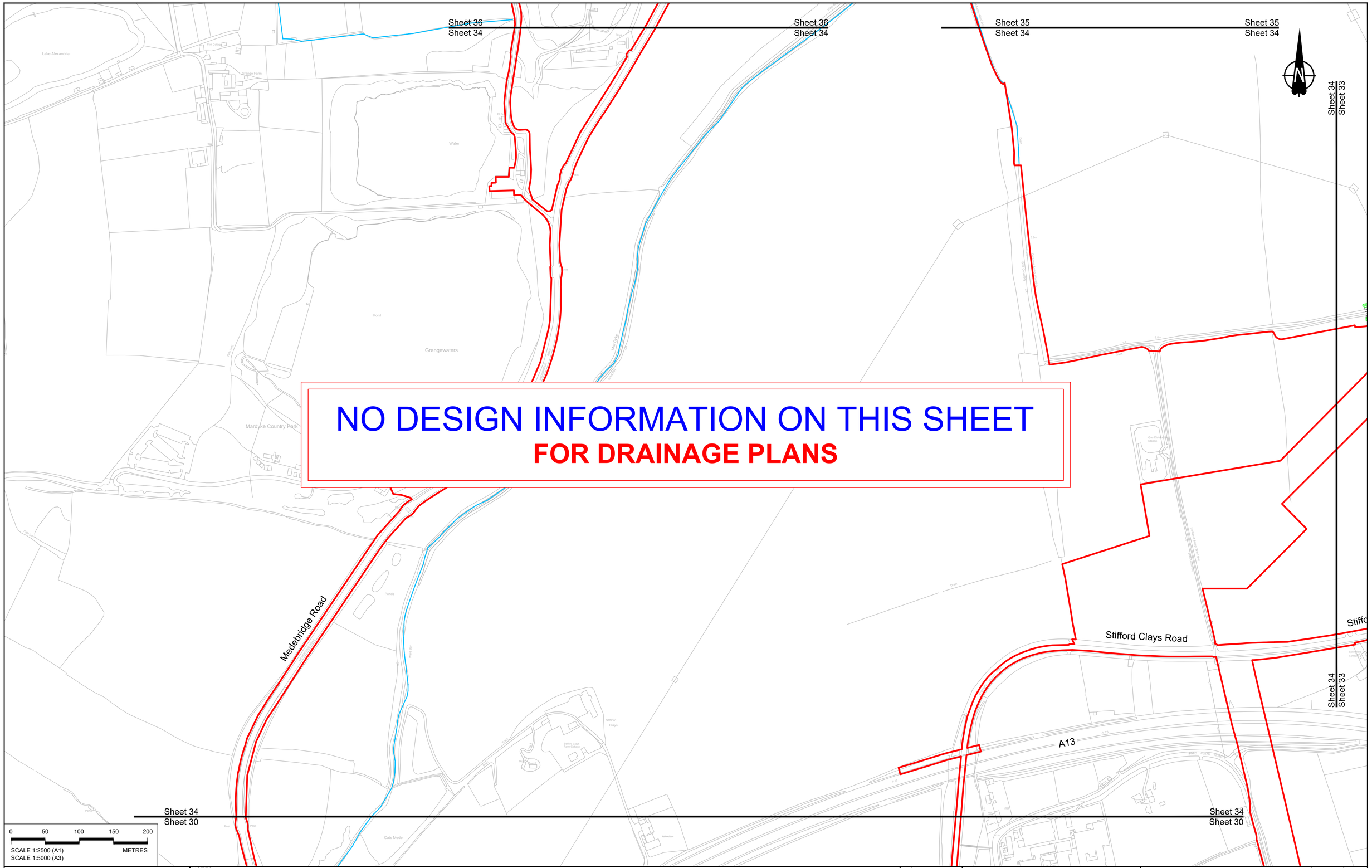

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LEGEND:

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- Local Authority boundary
- Existing watercourse

PROPOSED DRAINAGE

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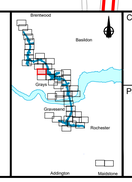
- P.S. Pumping station
- Containment for contaminated water from tunnel low point sump



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 34

Drawing Number: HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10031

HE540039-CJV-BOP-SZZ_DN000000_-DR-CD-10031.dwt

Sheet 38
Sheet 35

Sheet 38
Sheet 35

Sheet 37
Sheet 35

Sheet 37
Sheet 35

Sheet 36
Sheet 35

Mardyke

Orsett Fen

Attenuation pond 7
Work No. 8G

Outfall invert level = 4.8m

Outfall invert level = 4.4m

Attenuation pond 6
Work No. 8F

Outfall invert level = 5.6m

Attenuation pond 5
Work No. 8E

Culvert
Work No. 8S

Sheet 36
Sheet 35

Sheet 35
Sheet 34

Sheet 35
Sheet 34

Sheet 35
Sheet 33

Sheet 35
Sheet 33

0 50 100 150 200
METRES

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

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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. 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 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 35
Drawing Number: HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10032

HE540039-CJV-BOP-SZZ_DN000000_-DR-CD-10032.dwt

Sheet 39
Sheet 36

Sheet 39
Sheet 36

Sheet 38
Sheet 36

Sheet 38
Sheet 36

Sheet 36
Sheet 35

NO DESIGN INFORMATION ON THIS SHEET

FOR DRAINAGE PLANS

Sheet 36
Sheet 34

Sheet 36
Sheet 34

Sheet 36
Sheet 35

0 50 100 150 200

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

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PROPOSED DRAINAGE

- Watercourse diversion
- Infiltration basin, attenuation pond, infiltration pond
- Swale
- Ditch
- Culvert or pipe
- P.S. Pumping station
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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 36

Drawing Number: HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10033

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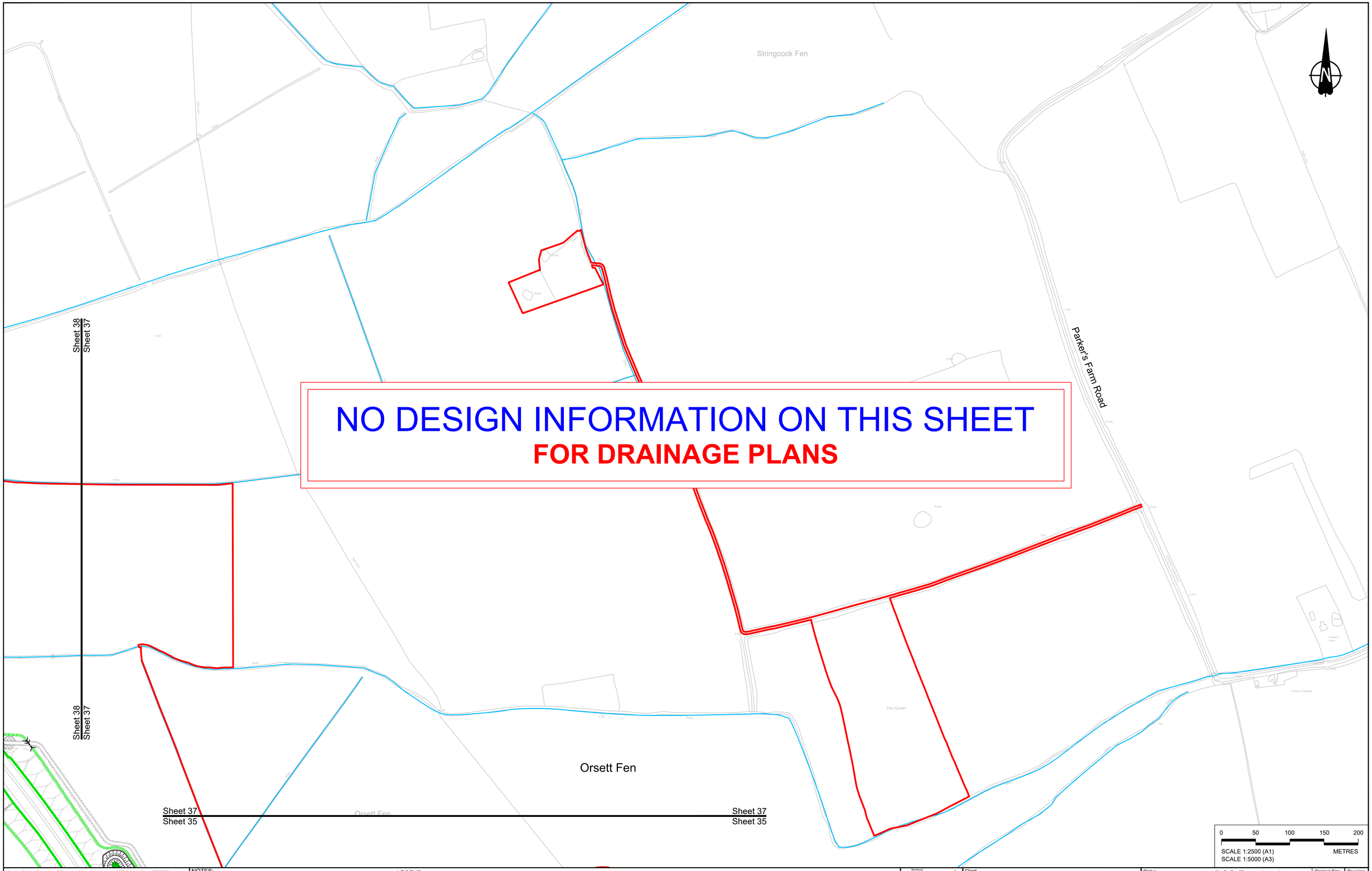

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FOR DRAINAGE PLANS

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Rev	Status	Rev. Date	Purpose of revision	Drawn	Chck'd	Apprv'd
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- Culvert or pipe
- P.S. Pumping station
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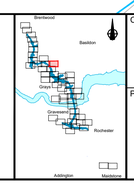

Client: national highways

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 37
Drawing Number: HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10034

HE540039-CJV-BOP-SZZ_DN000000_-DR-CD-10034.dwt

Sheet 41
Sheet 38

Sheet 41
Sheet 38

Sheet 39
Sheet 38

Sheet 39
Sheet 38

Sheet 38
Sheet 37

Sheet 38
Sheet 37

Culvert
Work No. 8V

Existing infiltration pond
Work No. 8I

Attenuation pond 8
Work No. 8H

Outfall invert level = 2.43m

Culvert
Work No. 8P

Culvert
Work No. 8O

Culvert
Work No. 8U

Culvert
Work No. 8T

Ockendon
Landfill

Sheet 38
Sheet 36

Sheet 38
Sheet 36

Sheet 38
Sheet 35

Sheet 38
Sheet 35

0 50 100 150 200
METRES

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

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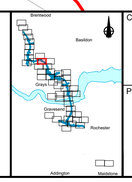
- Containment for contaminated water from tunnel low point sump

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 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 38
Drawing Number: HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10035

Sheet 42
Sheet 39

Sheet 41
Sheet 39

Sheet 41
Sheet 39

Culvert
Work No. 9W

Pipe
Work No. 9W

North Road

London Borough of Havering
Thurrock Council

Sheet 39
Sheet 38

Sheet 42
Sheet 39

Sheet 40
Sheet 39

Culvert
Work No. 8R

Culvert
Work No. 8R

Sheet 39
Sheet 38

Culvert
Work No. 8Q

Upminster and Grays Branch railway

Ockendon
Landfill

Sheet 39
Sheet 36

Sheet 39
Sheet 36

0 50 100 150 200
METRES

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

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Rev	Status	Rev. Date	Purpose of revision	Drawn	Chck'd	Apprv'd
P01	S8	19/10/2022	DCO Application	LY	BB	ASB
P02	S8	11/12/2023	Deadline 9	SA	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

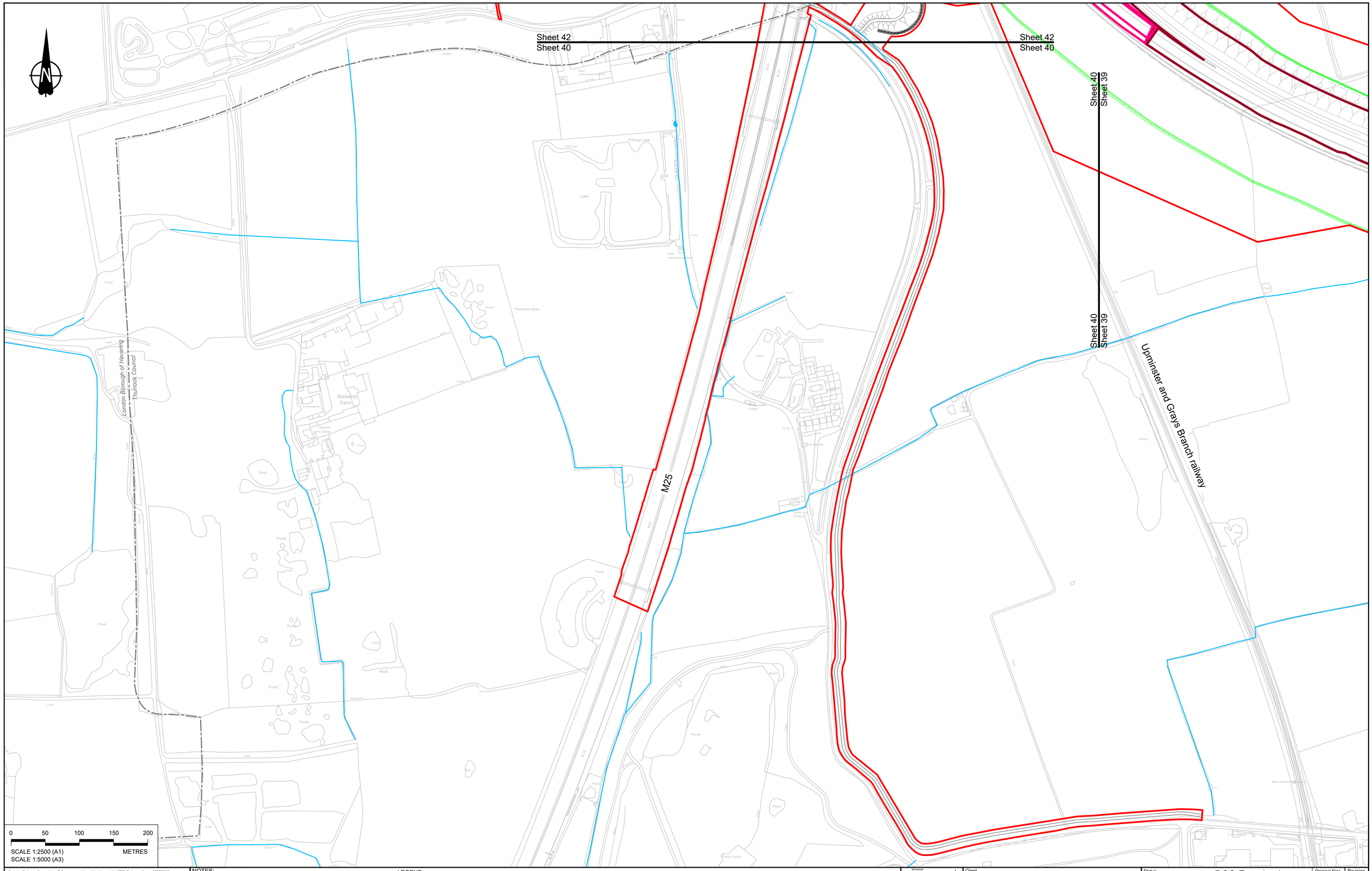
CATCHMENT AREAS AND OUTFALLS
- Catchment for Work No. 8H
- Catchment for Work No. 9Q
- Catchment for Work No. 9R

Client: national highways

Project: LOWER THAMES CROSSING

Status: DCO 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 39
Drawing Number: HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10036

HE540039-CJV-BOP-SZZ_DN000000_-DR-CD-10036.dwt



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P02	S8	11/12/2023	Deadline 9	SA	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

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 40

Drawing Number: HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10037

HE540039-CJV-BOP-SZZ_DN000000_-DR-CD-10037.dwt

NO DESIGN INFORMATION ON THIS SHEET

FOR DRAINAGE PLANS

Fen Lane

Thurrock Council
London Borough of Havering

Sheet 41
Sheet 39

Sheet 41
Sheet 38

Sheet 41
Sheet 39

Sheet 41
Sheet 38

0 50 100 150 200

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

METRES

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Rev	Status	Rev. Date	Purpose of revision	Drawn	Chck'd	Apprv'd
P01	S8	19/10/2022	DCO Application	LY	BB	ASB
P02	S8	11/12/2023	Deadline 9	SA	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

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 41

Drawing Number: HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10039

HE540039-CJV-BOP-SZZ_DN000000_-DR-CD-10039.dwt

Sheet 43
Sheet 42

Sheet 43
Sheet 42

Ockendon Road

Upminster and Grays branch railway

Pike Lane

M25

Pea Lane

North Ockendon

North Ockendon

Pipe
Work No. 9W

Pipe
Work No. 9W

M25

Sheet 42
Sheet 39

North Road

London Borough of Havering
Thurrock Council

Sheet 42
Sheet 39

Sheet 42
Sheet 40

Sheet 42
Sheet 40

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

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Rev	Status	Rev. Date	Purpose of revision	Drawn	Chck'd	Appr'd
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P02	S8	11/12/2023	Deadline 9	SA	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

CATCHMENT AREAS AND OUTFALLS
- Catchment for Work No. 9Q
- Catchment for Work No. 9R

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 42

Drawing Number: HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10040

HE540039-CJV-BOP-SZZ_DN000000_-DR-CD-10040.dwt

Sheet 44
Sheet 43

Sheet 44
Sheet 43

Thames Chase
Forest

Attenuation pond 10
Work No. 9R

Culvert
Work No. 9X

Outfall invert level = 8.0m

Attenuation pond 9
Work No. 9Q

Pike Lane

Clay Tye Road

Ockendon Road

North
Ockendon

Sheet 43
Sheet 42

Sheet 43
Sheet 42

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

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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. 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 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 43
Drawing Number: HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10041

HE540039-CJV-BOP-SZZ_DN000000_-DR-CD-10041.dwt

Sheet 45
Sheet 44

Sheet 45
Sheet 44

Brentwood Borough Council

London Borough of Havering

Attenuation pond 13
Work No. 9U

Shoeburyness railway

Attenuation pond 12
Work No. 9T

B187
Outfall invert level = 8.0m

St. Marys Lane

Attenuation pond 11
Work No. 9S

Culvert
Work No. 9X

Outfall invert level = 6.9m

Outfall invert level = 7.1m

Attenuation pond 10
Work No. 9R

B186

Thames Chase Forest

North Ockendon

Sheet 44
Sheet 43

Sheet 44
Sheet 43

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

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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. 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 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 44

Drawing Number: HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10042

HE540039-CJV-BOP-SZZ_DN000000_-DR-CD-10042.dwt

Codham Hall Farm

Sheet 46
Sheet 45

Sheet 46
Sheet 45

A127

Cranham

Outfall invert level = 11.78m

Attenuation pond 13
Work No. 9U

Shoeburyness Railway

Brentwood Borough Council

London Borough of Havering

Sheet 45
Sheet 44

Sheet 45
Sheet 44

0 50 100 150 200

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

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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
- 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 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 45
Drawing Number: HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10043

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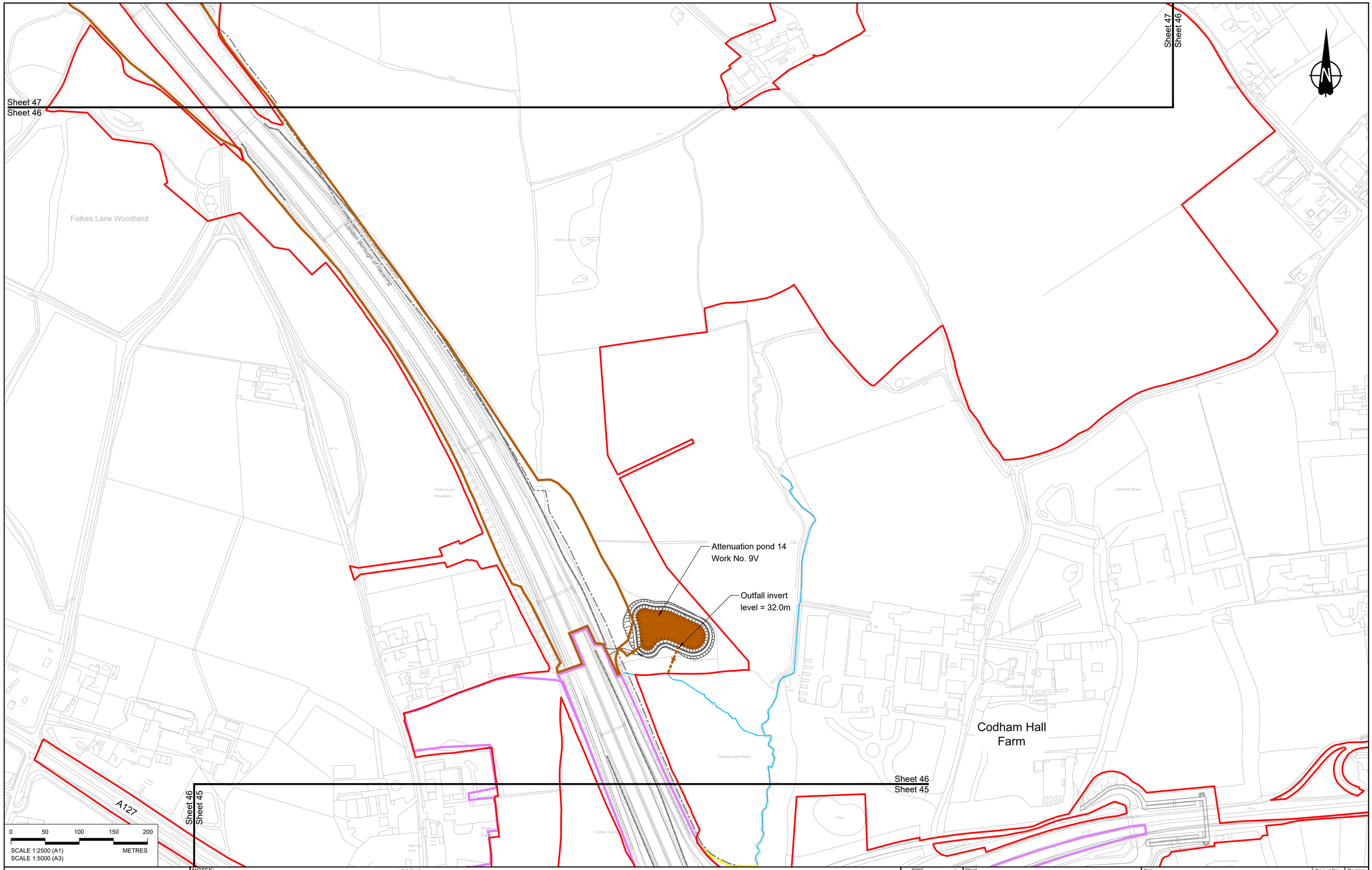

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Rev	Status	Rev. Date	Purpose of revision	Drawn	Chck'd	Apprv'd
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LEGEND:

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
- 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 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 46

Drawing Number: HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10044

HE540039-CJV-BOP-SZZ_DN000000_-DR-CD-10044.dwt

Sheet 48
Sheet 47

Sheet 48
Sheet 47

M25

Warley Road

Great Warley

Folkes Lane
Woodland

Sheet 47
Sheet 46

Sheet 47
Sheet 46

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

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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

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 47

Drawing Number: HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10045

Sheet 49
Sheet 48

Sheet 49
Sheet 48

Brentwood Borough Council
London Borough of Havering

NO DESIGN INFORMATION ON THIS SHEET
FOR DRAINAGE PLANS

Sheet 48
Sheet 47

Sheet 48
Sheet 47

M25

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

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P02	S8	11/12/2023	Deadline 9	SA	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

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 48

Drawing Number: HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10046

NO DESIGN INFORMATION ON THIS SHEET

FOR DRAINAGE PLANS

M25

Brentwood Borough Council
London Borough of Havering

A12

M25
J28

A12

M25

Sheet 49
Sheet 48

Sheet 49
Sheet 48

0 50 100 150 200

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

METRES

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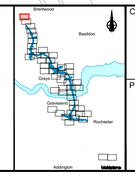
LEGEND:

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 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 49

Drawing Number

HE540039-CJV-BOP-SZZ_DN100000_-DR-CD-10047

HE540039-CJV-BOP-SZZ_DN000000_-DR-CD-10047.dwt

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