

AYLESBURY EMBANKMENT ENVIRONMENTAL SETTING AND SITE DESIGN REPORT

Deposition of Waste for Recovery Permit Application
EKFB Joint Venture

794-ENV-EPC-JER9490

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23 April 2026

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1 INTRODUCTION

- 1.1.1 This report has been prepared to support an application for a bespoke Environmental Permit for the deposit of waste for recovery to develop Aylesbury Embankment, Off A418 Oxford Road, Aylesbury.

1.2 Background

- 1.2.1 HS2 is Britain's new high speed rail line being built from London to Birmingham.
- 1.2.2 The route of the rail line will intercept some historic landfill sites, including Hartwell Brickworks Landfill, which will require the excavation and removal of the deposited waste.
- 1.2.3 As part of the required mitigation for the scheme, a number of landscape bunds need to be formed, including the landscaping bund at the Aylesbury Embankment section of the development.
- 1.2.4 A Nature and Heritage Conservation Screening Report was also obtained from the Environment Agency (EA) to identify protected species and habitats within relevant screening distances.

1.3 Proposed Development

- 1.3.1 The site has been acquired for the route of the HS2 high speed rail line from London to Birmingham. At Aylesbury Embankment a landscape bund is to be constructed to mitigate against the visual impacts caused by an acoustic barrier designed to reduce noise impacts from the rail line.
- 1.3.2 Suitable waste excavated from the Hartwell Brickworks Landfill site, and screened/treated prior to use, is to be used in the construction of the landscape bund. The construction using waste material constitutes a deposition for recovery activity.
- 1.3.3 In total, approximately 5,000 m³ of waste will be used to form the embankment.
- 1.3.4 The waste types will be limited to non-hazardous waste. The waste material will be placed in a layer 100mm – 200mm thick and rolled in position. Non-waste is also being used in the construction of the embankment and will comprise approximately 99% of the bund's material with waste material being recovered to make up the further 1%.

1.4 Site details

- 1.4.1 The site lies in a largely open agricultural area on the southwestern edge of Aylesbury. The centre of the site is at approximate grid reference SP 80544 12017. The site address is:
Aylesbury Embankment site,
Land to the south of A418 Oxford Road,
Aylesbury,
HP21 9NS
- 1.4.2 The site location is shown in Drawing 1 of the drawings accompanying this report.

-
- 1.4.1 The site lies approximately 500m southwest of the closest residential properties off Ellen Road in the Southcourt area of Aylesbury. It is immediately surrounded by fields that are associated with agriculture.
 - 1.4.2 The earliest historical maps returned as part of a Groundsure report for the site date back to 1877, when the site appears to be entirely used as farmland. Other than the encroachment of housing as Aylesbury expanded to the northeast of the site between 1960 and 1990, there appears to have been no change in the agricultural use of the land upon which Aylesbury Embankment is to be built.
 - 1.4.3 There is a single Site of Special Scientific Interest (SSSI) within a 2km radius of the site. This site is Bugle Quarry, approximately 1.3 km to the west of location of the proposed DfR activity.
 - 1.4.4 There are no Special Protections Areas (SPAs), Special Areas of Conservations (SACs) or Ramsar sites within 2km of the site.
 - 1.4.5 The EA nature and heritage conservation screening report (EPRLB3502LZ) indicates that there is a protected species within the screening distance of 500m of the site, referenced as 'Code 2'. This refers to [REDACTED] as confirmed by the Biodiversity Technical Specialist in the Environment Agency Thames Area team.
 - 1.4.6 The Conservation Screening Report is included in Appendix A to the Environmental Risk Assessment (Appendix B).
 - 1.4.7 There is a deciduous woodland protected habitat within the screening distance of 500m of the site.
 - 1.4.8 The Groundsure report, included as Appendix A to this report, indicates two historic landfill sites within 500m of the proposed site boundary, one of which is the Hartwell Brickworks Landfill from which the waste material for this application will be extracted. Hartwell Brickworks Landfill lies approximately 250m north of the proposed deposition site. The second site identified in the Groundsure report is located approximately 140m northwest of the deposition site.
 - 1.4.9 A plan showing the location of nearby receptors is included as Drawing 2 to this report.

Topography

- 1.4.10 Aylesbury Embankment crosses an area of open fields across a generally flat landform.

1.5 Site Development

Historical Development

- 1.5.1 A review of historical maps provided with the Groundsure report, and included in Appendix A to this report, shows no indication of any historical industrial use of the proposed site.
- 1.5.2 Nearby land uses identified are the historic brickworks and subsequent landfill, approximately 200m to the north of the proposed deposition site, and kilns, pits and ground workings associated with the brickworks.
- 1.5.3 There are no historical tanks recorded within 500m of the site.

1.5.4

1.5.5 Groundsure Report identified three waste exemptions registered within 500m of the site:

Reference	Category	Description	Location relative to Deposition site
WEX233235	Treating waste exemption	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising.	c50m southwest
WEX233235	Using waste exemption	Spreading of plant matter to confer benefit	c50m southwest
WEX254429	Using waste exemption	Use of waste in construction	c440m south

Proposed Development

- 1.5.6 The site has been acquired for the route of the HS2 high speed rail line from London to Birmingham. At Aylesbury Embankment a landscape bund is to be constructed to mitigate against the visual impacts caused by an acoustic barrier designed to reduce noise impacts from the rail line.
- 1.5.7 Suitable waste excavated from the Hartwell Brickworks Landfill site, and screened/treated prior to use, is to be used in the construction of the landscape bund. The construction using waste material constitutes a deposition for recovery activity.
- 1.5.8 The landscape bund will be constructed of both treated waste and natural materials (high plasticity class 2 and 4 Oxford Clay). The treated waste will be re-used within the southern section of the bund.
- 1.5.9 In total, approximately 5,000 m³ of waste will be used in the formation of the embankment, representing just less than 1% of the total volume of material required. The construction using waste material constitutes a recovery activity.
- 1.5.10 The waste material will be placed in a layer 100mm – 200mm thick and rolled in position. Non-waste is also being used in the construction of the embankment and will comprise approximately 99% of the bund's material with waste material being recovered to make up the further c1%.

2 CONCEPTUAL SITE MODEL

- 2.1.1 This section identifies the sources, pathways and receptors that comprise the conceptual site model (CSM) for the proposed activity.

2.2 Pathway and Receptor

Geology¹

- 2.2.1 The bedrock geology at the deposition site is mainly formed of Portland Sand Formation (POSA), underlain by Kimmeridge Clay Formation (KC).
- 2.2.2 The CSM indicated that there is no superficial geology at the deposition site.

Hydrology

- 2.2.3 Sedrup Ditch flows through the Aylesbury Embankment site before connecting to Stoke Brook which is present along the eastern boundary of the embankment site. As part of the project, Sedrup ditch will be diverted, lined and partially culverted such that it will run 95 m from the Deposition site at its closest point.
- 2.2.4 C2.L.26 Catchment will run along the northeastern boundary of the deposition site. The catchment will be a concrete channel providing drainage for structures and highways associated with Aylesbury Embankment and Aylesbury North Cutting, including an overbridge and footpaths. The catchment will drain into Sedrup Ditch.

Surface Water Abstractions

- 2.2.5 There is no surface water abstraction within 2,000m of the site.

Flooding

- 2.2.6 The EA flood risk maps² have been consulted. They indicated that the site is not located in a flood zone. The Groundsure report gives the highest risk of flooding on-site and within 50m of the site as negligible .
- 2.2.7 The Groundsure Report indicates no record of historical flood events within 250m of the site.

Hydrogeology

- 2.2.8 The bedrock aquifer underlying the deposition site is designated as a Secondary A aquifer.
- 2.2.9 The Embankment works will involve removing the POSA bedrock leaving the underlying, impermeable stratum of KC beneath the deposition site.

² [Flood map for planning - GOV.UK \(flood-map-for-planning.service.gov.uk\)](https://www.gov.uk/flood-map-for-planning)

-
- 2.2.10 The Groundsure report indicates that there are no identified Groundwater Source Protection Zones (GSPZ) within a 500m radius of the site.
- 2.2.11 Given the underlying geology will, upon construction of the embankment, be the low-permeability KC strata, a Hydrogeological Assessment Report (HAR) was not carried out for the deposition site.

Groundwater Abstractions

- 2.2.12 The Envirocheck report identifies a single groundwater abstraction within 2,000 m of the site. The abstraction point is 1,482 m west of the proposed landscape bund. It is described as a General Farming & Domestic abstraction belonging to the “Trustees of Ernest Cook Trust”. It is not clear whether the abstraction is active.

Groundwater Flow

- 2.2.13 The CSM summarised the groundwater strikes within the deposition area. It states that groundwater was encountered in borehole ML61-TP461 at 2.00mbgl in the POSA. This equates to 6.81mAOD. Groundwater present within KC (Unproductive Stratum) is likely to be limited to poorly connected pore spaces, with no significant regional groundwater flow due to the clay dominated and cohesive nature of this strata.

Groundwater Quality

- 2.2.14 A Geo-environmental assessment was undertaken for areas of land that included the former Hartwell Clay, Old Brick and Tile Works and Landfill, plus greenfield area including the deposition site.
- 2.2.15 Groundwater samples were collected and analysed for a suite of determinants consistent with the potential contamination from the nearby former works, including metals, inorganic and organic contaminants.
- 2.2.16 No exceedances were recorded in groundwater from boreholes in the deposition site.

Man-made Pathways

- 2.2.17 The site lies in a rural setting, it is not anticipated that there will be underground utilities or other man-made subsurface pathways located within close proximity of the site.
- 2.2.18 C2.L.26 Catchment will run along the northeastern boundary of the deposition area, providing drainage for structures associated with Aylesbury Embankment and Aylesbury North Cutting. This will be an above-ground, concrete lined channel connecting to Sedrup Ditch.

Receptors and Compliance Points

- 2.2.19 The receptors and compliance points to be used in the detailed risk assessments enclosed with the Environmental Permit application are detailed within this section.

Groundwater

- 2.2.20 The POSA bedrock will be removed in the construction of the embankment, leaving the impermeable Kimmeridge Clay as the bedrock. The KC has very limited groundwater and is an

unproductive aquifer. The CSM concludes the KC poses no viable contaminant pathway to groundwater.

- 2.2.21 The CSM further concludes that the site setting and the placement of treated waste within low-permeability, high-plasticity clays mean that pathways during and after construction of the landscape bund are not viable.
- 2.2.22 The landscaping bund will be filled with material that has been treated offsite and meets the criteria for a non-hazardous material. The works are considered to have negligible effect on groundwater. Therefore, no compliance point is proposed for groundwater.

Surface Water

- 2.2.23 The nearest surface water receptor is C2.L.26 Catchment, adjacent to the northeastern boundary of the deposition site, that feeds into Sedrup Ditch and thence to Stoke Brook.
- 2.2.24 There are no residential properties with gardens that would be considered vulnerable to run-off due to the proposed profile of the site.
- 2.2.25 Given the non-hazardous nature of the waste and the in-situ deposition into the landscape bund, no surface water compliance points for run-off from the deposition for recovery activity are proposed.

Amenity (Nuisance and Health Issues)

- 2.2.26 For the purposes of the risk assessment for amenity, the potential receptors that need to be considered are nearby residents. In this case the closest residential properties lie in the Southcourt area of Aylesbury, approximately 400 m northeast of the proposed activity.
- 2.2.27 Amenities could potentially be at risk from airborne “nuisance” dust. This is addressed in the Environmental Risk Assessment (Appendix C to the main application document) which details the control measures to be employed on site and concludes that the residual risk is “Low”. Control measures during construction include:
- Treated waste will not be stockpiled on site.
 - Treated waste will be placed directly into the landform, levelled and compacted on the same day.
 - Increased monitoring for dust emissions will take place during dry periods.
 - A water bowser and hosepipes will be available on site to dampen treated waste as necessary.
- 2.2.28 Once the landscape bund is constructed, above the treated waste will be a restoration layer of non-waste material and, therefore it will not be able to generate dusts.
- 2.2.29 Notwithstanding this, dust observations and dust control techniques will be in place for the construction phase of the landscape bund as a whole, see paragraph 4.4.1.

3 POLLUTION CONTROL MEASURES

3.1 Site Engineering

Slope Stability

- 3.1.1 Slope stability is considered in the Geotechnical Design Report presented in Appendix B to this ESSD report. The design is such that long-term stability is well within safety margins without the need for mitigation.
- 3.1.2 Slope settlement monitoring is discussed in section 4.3. A detailed assessment of slope settlement is contained in the Geotechnical Design Report in Appendix B to this report.

3.2 Restoration

- 3.2.1 The waste materials imported to the site make up approximately 1% of the total materials used to construct the embankment. The waste will have a restoration layer placed above it as per the design for the whole of the embankment.

3.3 Surface Water Management

- 3.3.1 Surface water at the site will be generated from incidental rainfall only. Run-off will be captured by the C2.L26 Catchment and will ultimately flow to Sedrup Ditch and into Stoke Brook.
- 3.3.2 During the construction of the embankment and landscape bund, the earthworks will be carefully maintained and profiled to ensure run-off is intercepted and managed in a controlled manner, i.e. directed to the catchment channel. Areas of ponded water will be pumped out or otherwise dealt with by the contractor during construction.

3.4 Post Closure Controls

- 3.4.1 The embankment will be constructed to achieve levels approved by Buckinghamshire Council.
- 3.4.2 There is no requirement for a Closure and Aftercare Plan for recovery activities.
- 3.4.3 Upon completion of the recovery activity, a completion report shall be prepared detailing the waste accepted as part of the recovery activity, outcomes of monitoring throughout the life of the permit and confirmation that no pollution incidents or contamination have occurred at the site. If any pollution incidents or contamination are identified, details of any investigation and remediation shall be confirmed.
- 3.4.4 Upon permit surrender the surrender application will include records of the waste types recovered during the operational phase. Evidence will be provided to show that only permitted wastes have been accepted.

4 MONITORING

4.1 Weather

- 4.1.1 Average annual precipitation recorded for the region is 647.8 mm as recorded between 1991 – 2020 at Oxford meteorological station³, located approximately 30km west of the site. Climate data for this climate station are summarised below using Met Office data:

Table 4-1: Climate Summary

Month	Max. temp (°C)	Min.temp (°C)	Days of air frost (days)	Sunshine (hours)	Rainfall (mm)	Days of rainfall ≥ 1 mm (days)
January	7.98	2.38	8.40	63.39	59.57	12.07
February	8.63	2.32	7.50	81.90	46.77	9.40
March	11.29	3.64	3.80	118.16	43.16	9.10
April	14.41	5.29	1.43	165.60	48.65	8.87
May	17.68	8.17	0.10	200.27	56.91	9.63
June	20.71	11.14	0.00	197.09	49.69	8.00
July	23.06	13.09	0.00	211.99	52.50	8.30
August	22.50	13.00	0.00	193.28	61.66	9.04
September	19.44	10.65	0.00	145.30	51.87	8.63
October	15.09	7.95	0.73	110.15	73.18	10.87
November	10.88	4.85	3.17	70.75	71.47	12.15
December	8.23	2.59	8.60	57.60	66.12	11.61
Annual	15.02	7.12	33.73	1615.48	681.55	117.67

4.2 Gas Monitoring

- 4.2.1 Gas monitoring is not required as the waste to be accepted is not expected to generate gas. Furthermore, the waste will be deposited above the surface level of the surrounding ground.

4.3 Settlement Monitoring

- 4.3.1 Calculations and modelling of slope stability were undertaken at the design stage and published in the Aylesbury North Cutting Geotechnical Design Report (GDR) (report reference: 1MC06-CEK-GT-REP-CS04_CL18-000038), included as Appendix B to this report.
- 4.3.2 The static slope stability of earthworks was modelled the commercial geotechnical software Oasys PDisp. Full details of the methodology are presented in the Aylesbury North Cutting GDR.
- 4.3.3 Slope settlement in the railway embankment and landscape bund is not considered to be a hazard. Therefore, no monitoring for slope stability is proposed.

³ [Oxford Location-specific long-term averages](#)

4.4 Amenity Monitoring

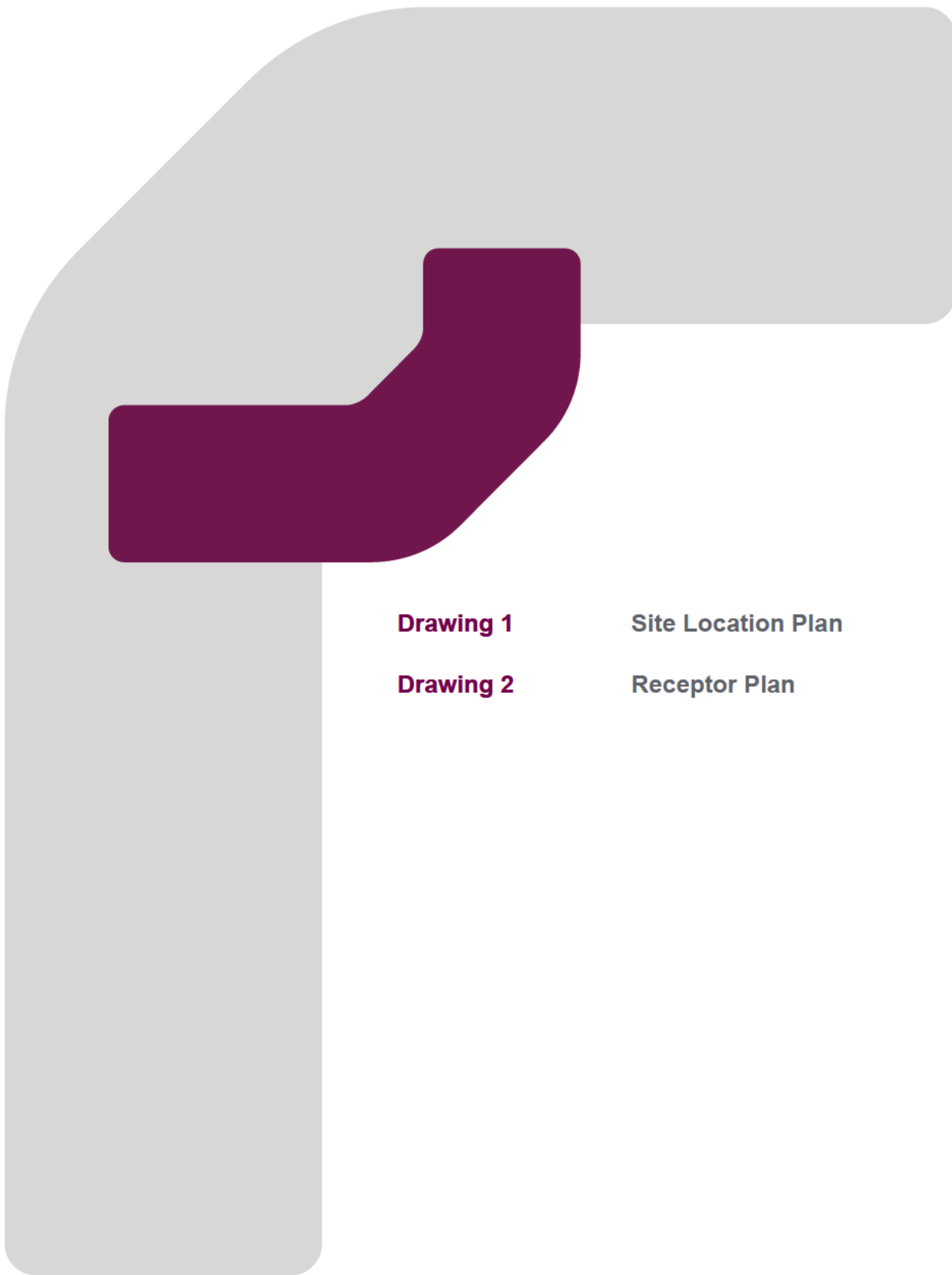
- 4.4.1 Daily monitoring will be undertaken in accordance with operating procedures for amenity issues such as dust. This will be achieved via visual inspections.

5 SITE CONDITION REPORT

- 5.1.1 A Site Condition Report (SCR) is not required for a permitted activity where waste is permanently deposited for recovery. Therefore, an SCR is not included as part of the Environmental Permit application.

REFERENCES

1. EA Flood Risk Mapping: [Flood map for planning - GOV.UK \(flood-map-for-planning.service.gov.uk\)](https://flood-map-for-planning.service.gov.uk)
2. Meteorological data: [Oxford Location-specific long-term averages](#)

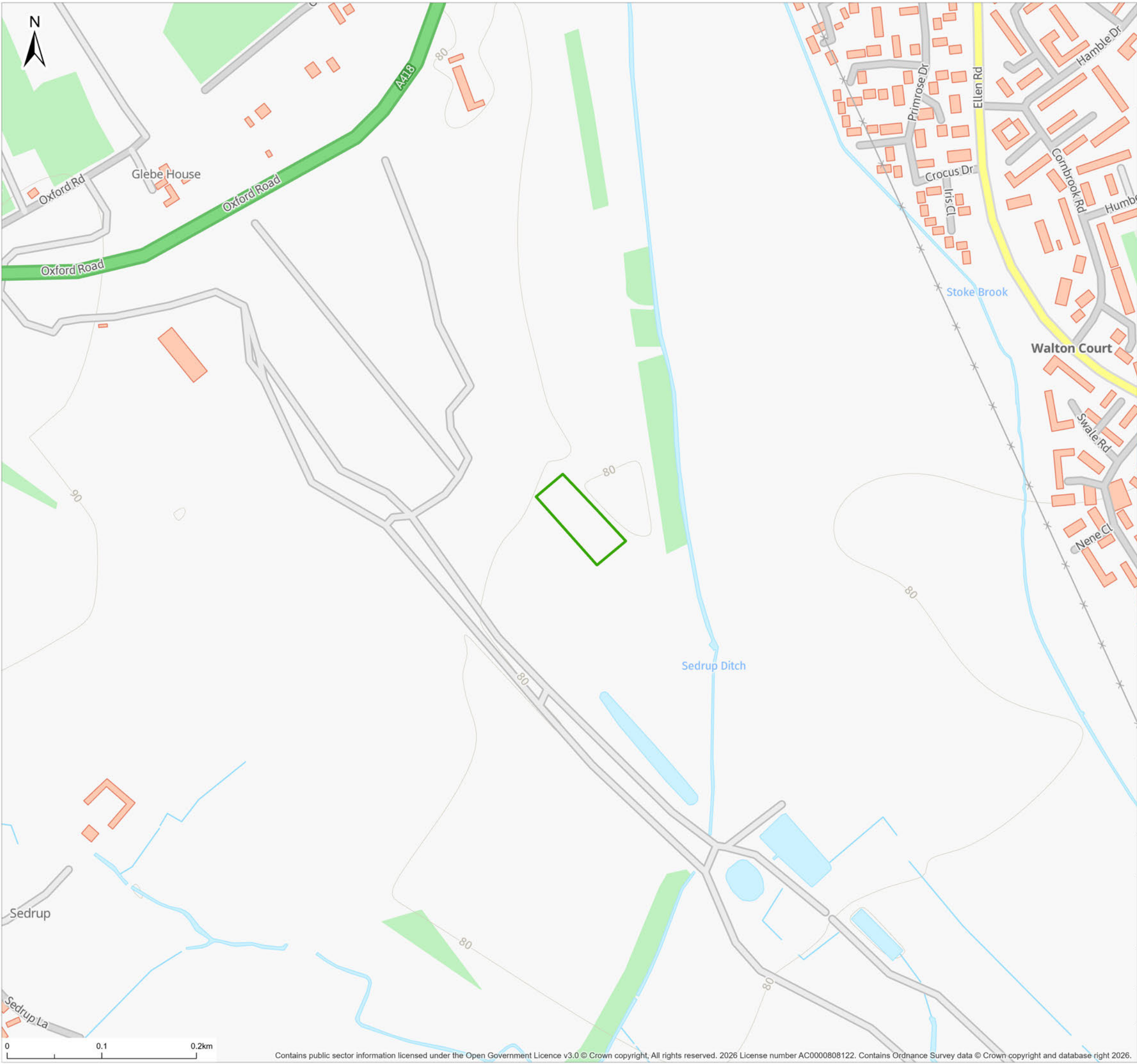


Drawing 1

Site Location Plan

Drawing 2

Receptor Plan



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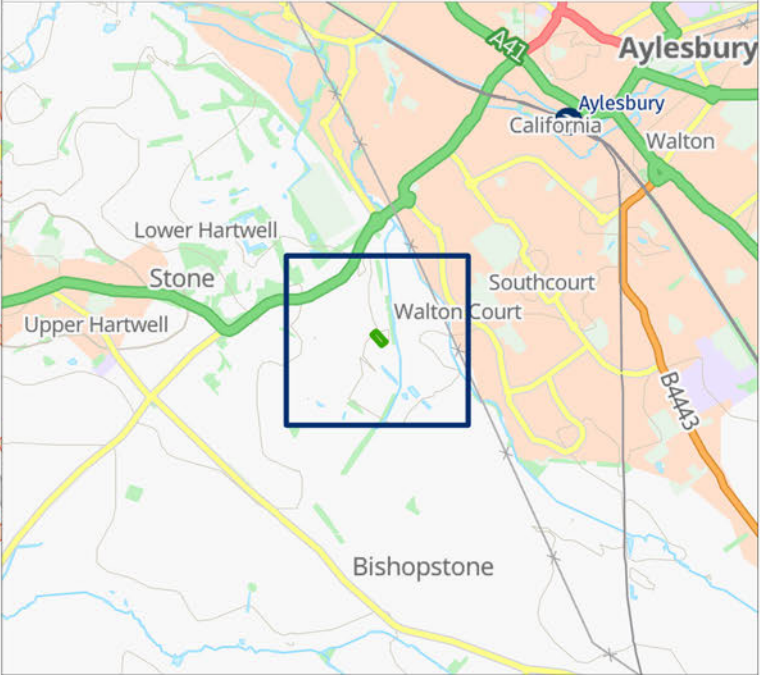
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LEGEND

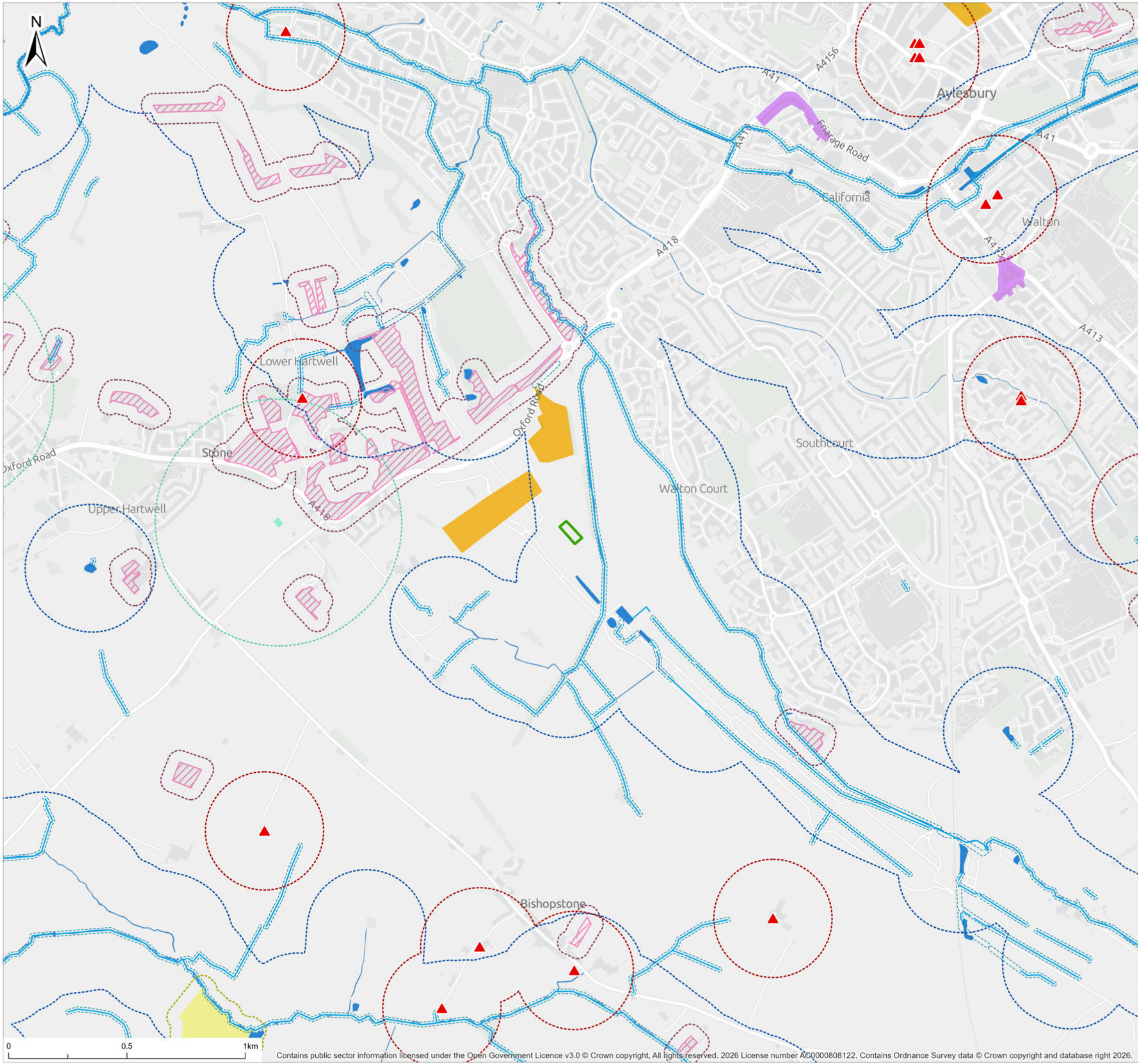
Permit Boundary



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Project	HS2 Waste Recovery Permits		
Project No.	794-ENV-GDE-JFR3530		
Title	Hartwell Landfill Reuse Location		
Drawing No. JFR3530-0010-04	Figure No. 01	Revision 04	Status FINAL
Date APR 2026	Drawn By JM	Checked By AK	Revision By JM
Scale @ A3 1:4,000		Datum OSGB 1936	

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- LEGEND**
- Permit Boundary
 - Air quality management area
 - Historic landfill site
 - Priority habitat
 - Priority habitat - 50 m buffer
 - Scheduled monument
 - Scheduled monument - 50 m buffer
 - Site of Special Scientific Interest
 - Site of Special Scientific Interest - 500 m buffer
 - Surface water
 - Surface water - 250 m buffer
 - Watercourse
 - Watercourse - 10 m buffer
 - Water wells
 - Water wells - 250 m buffer



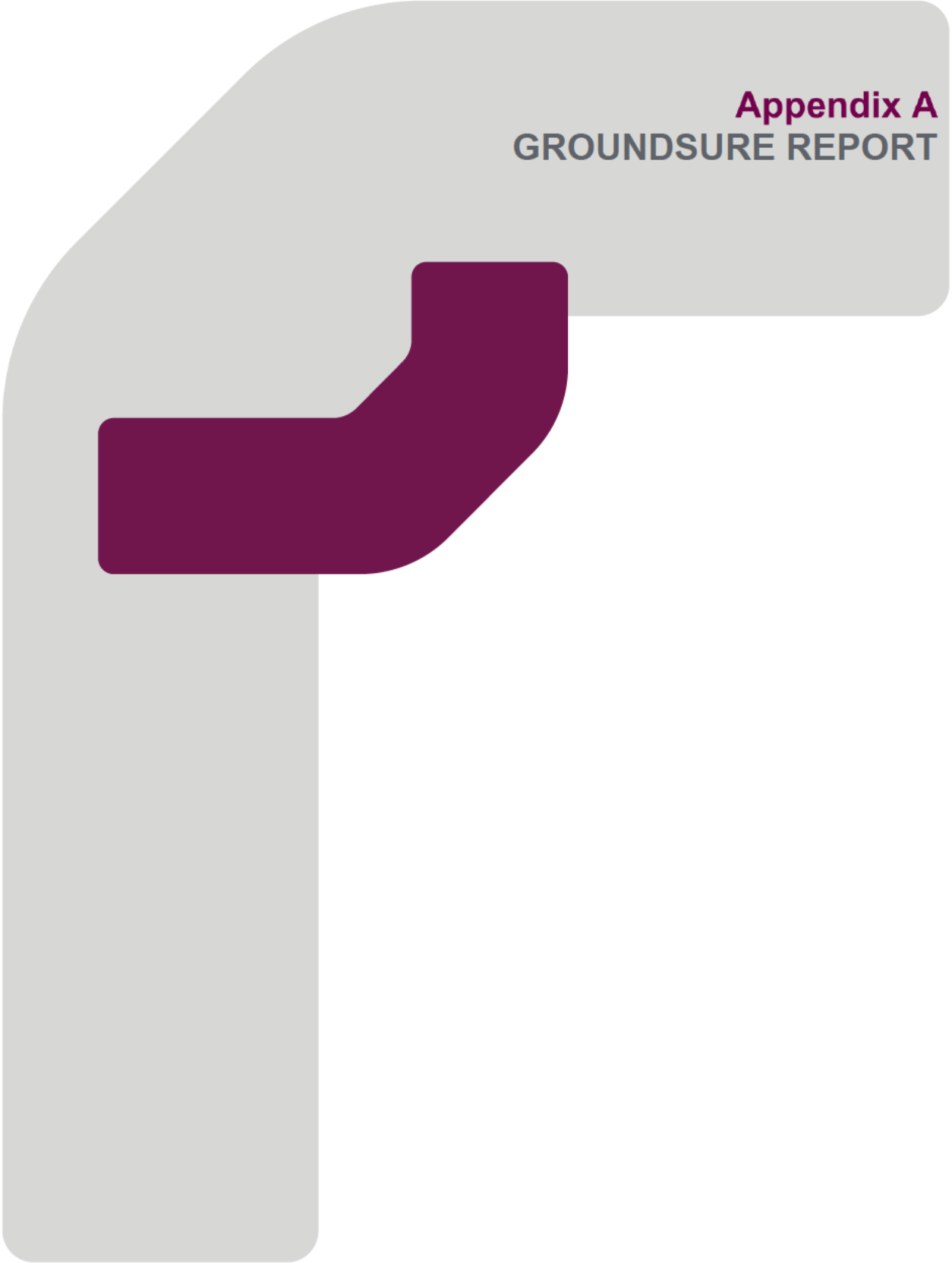
Client **EKFB**

Project **Aylesbury HS2**

Project No. **JFR3530**

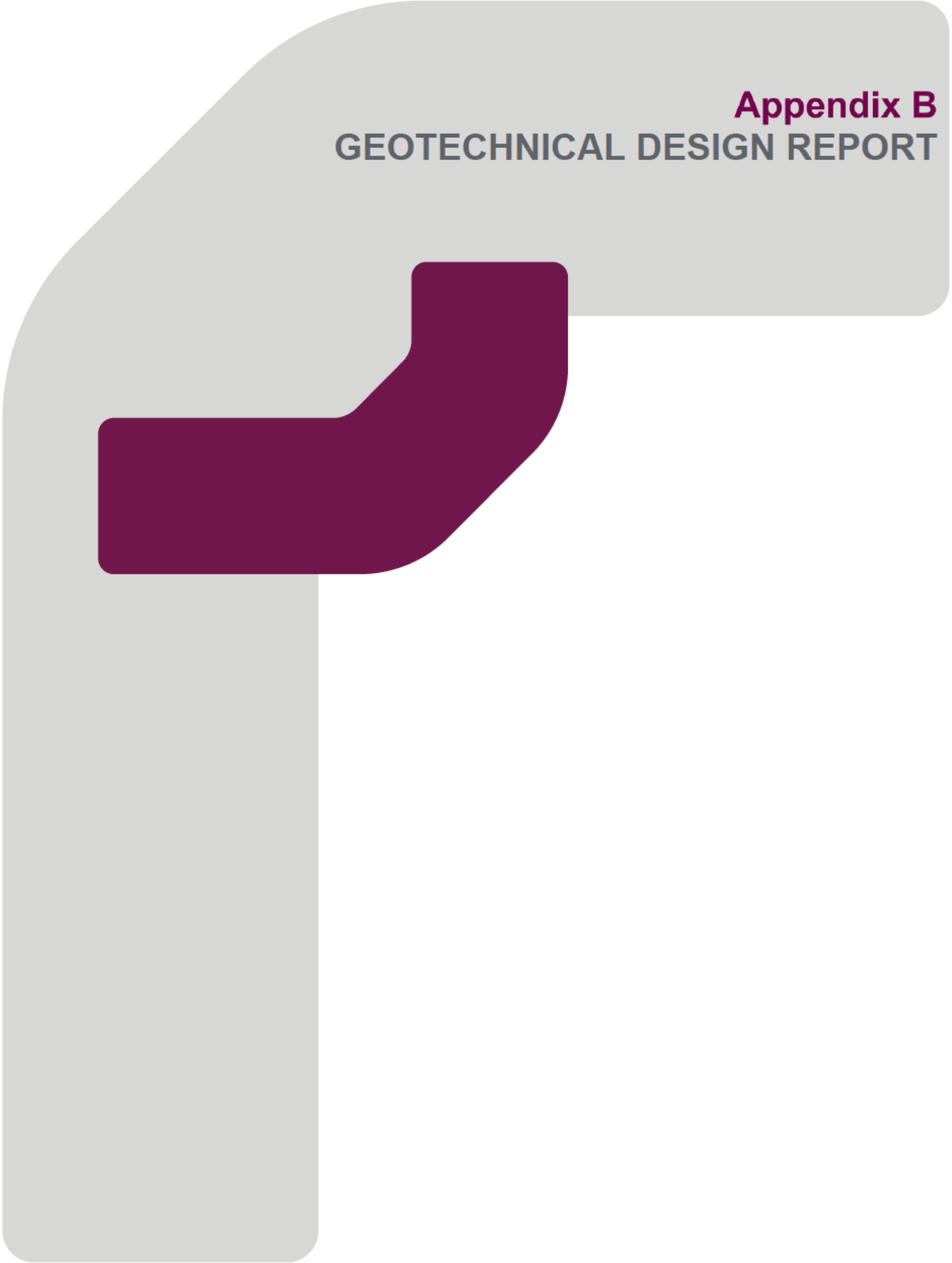
Title **Receptors at Aylesbury**

Drawing No. 3530-00011-02	Figure No. 01	Revision 02	Status FINAL
Date APR 2026	Drawn By AC	Checked By AK	Revision By JM
Scale @ A3 1:16,000		Datum OSGB 1936	



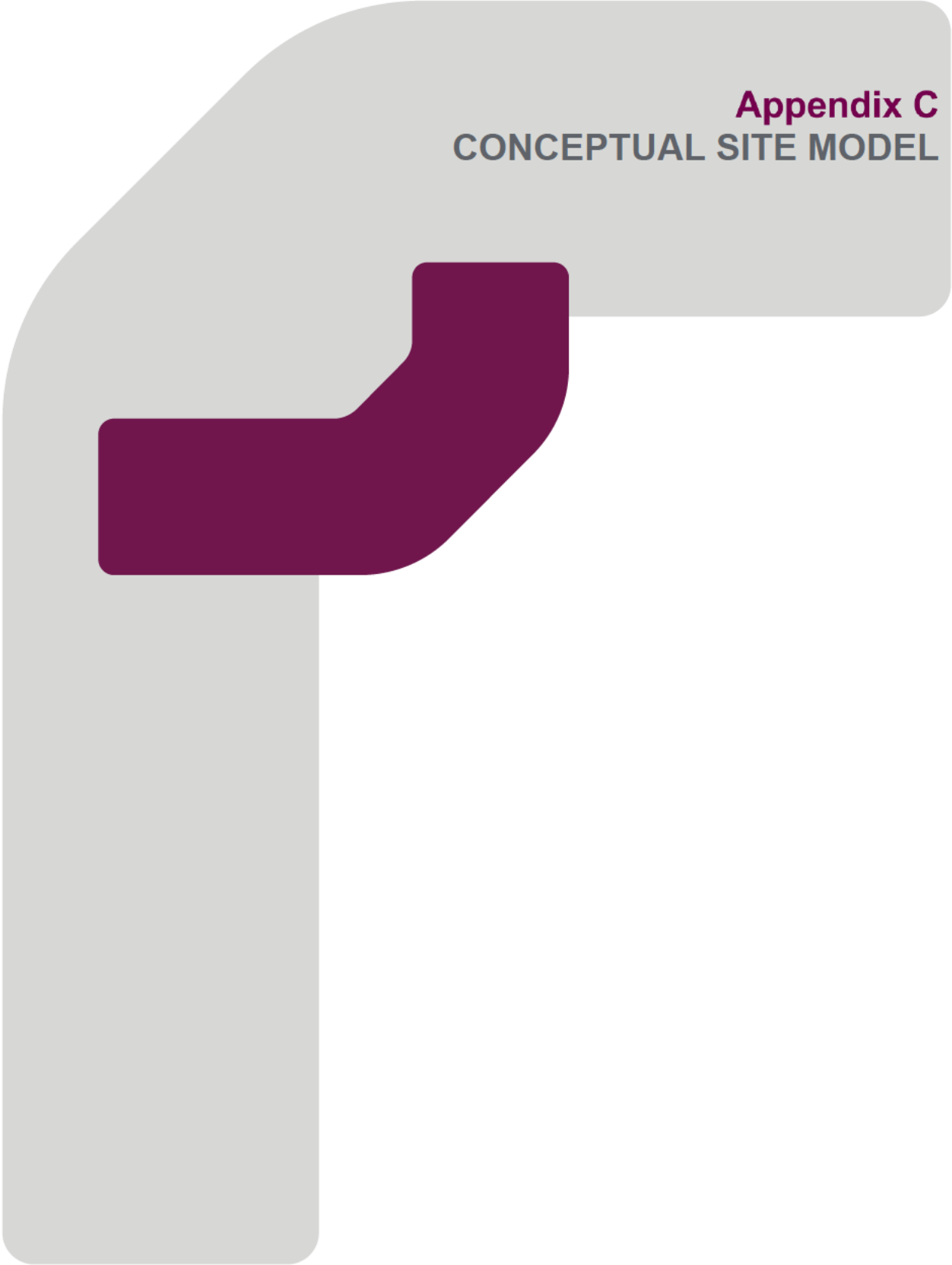
Appendix A

GROUNDSURE REPORT



Appendix B

GEOTECHNICAL DESIGN REPORT



Appendix C

CONCEPTUAL SITE MODEL



Appendix D

GEOENVIRONMENTAL ASSESSMENT REPORT

AYLESBURY EMBANKMENT ENVIRONMENTAL SETTING AND SITE DESIGN REPORT

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2026-04-23

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