South East Strategic Reservoir Option

Preliminary Environmental Information Report

Appendix 6.1 - Macroinvertebrate, invasive species and depressed river mussel baseline surveys (2024)

Date: October 2025

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1 Purpose of this appendix

1.1.1 Based on the recommendations of the Gate 2 Environmental Appraisal Report (EAR) (Atkins, 2022) and supporting workstreams for the South-East Strategic Reservoir Option (SESRO), a requirement for further surveys was identified, in order to update the limited understanding of the baseline sensitivity of the aquatic environment within the Ock catchment and the River Thames.

1.1.2 This note presents methods and results of the Invasive Non-Native Species (INNS), macroinvertebrates and depressed river mussel *Pseudanodonta complanata* surveys undertaken by Ricardo in 2024.

2 Survey sites

2.1.1 INNS, macroinvertebrate and depressed river mussel survey locations were selected following a principally desk-based exercise given access restrictions and sensitivities at the time of the Gate 2 environmental assessments. Locations were selected to broadly characterise the Study Area and the WFD water bodies that underpin it, supporting future environmental assessments of SESRO (Table 2.1, Annex 1, Annex 2, and Annex 3).

2.1.2 River Thames surveys were undertaken during 2024, and Ock catchment watercourse surveys were undertaken as far as possible from available access during 2024, though access availability was limited in this period.

2.2 Invasive Non-Native Species

2.2.1 Table 2.1 provides a summary of the Gate 3 INNS survey locations in 2024, including their corresponding NGR. Survey locations are shown in Annex 1.

Table 2.1 INNS survey locations (sites where land access was available in 2024 are highlighted in grey).

Waterbody	Site ID	Final NGR	Initial NGR	NGR changed	Surveyed in spring 2024	Surveyed in summer 2024
Ock catchment	Multi_Env_1	SU4542090095	SU4542090095	×	×	×
	Multi_Env_2	SU4381190505	SU4381190505	×	✓	✓
	Multi_Env_3	SU4295090448	SU4295090448	×	✓	✓
	Multi_Env_4	SU4266291579	SU4259091191	✓	✓	✓
	Multi_Env_5	SU4364391485	SU4366991343	✓	✓	✓
	Multi_Env_6	SU4311991745	SU4311991745	×	✓	✓
	Multi_Env_7	SU4352992389	SU4352992389	×	✓	✓
	Multi_Env_8	SU4423193800	SU4382793180	✓	✓	✓
	Multi_Env_9	SU4547493791	SU4547493791	×	✓	✓
	Multi_Env_10	SU4270594810	SU4270594810	×	×	×

Waterbody	Site ID	Final NGR	Initial NGR	NGR changed	Surveyed in spring 2024	Surveyed in summer 2024
	Multi_Env_11	SU4311294884	SU4311294884	×	×	×
	Multi_Env_12	SU4316994669	SU4316994669	×	×	×
	Multi_Env_13	SU4414294906	SU4414294906	×	×	×
	Multi_Env_14	SU4526294543	SU4526294543	×	✓	✓
	Multi_Env_15	SU4606594897	SU4606594897	×	✓	✓
	Multi_Env_16	SU4696394641	SU4696394641	×	✓	✓
	Multi_Env_17	SU4680595127	SU4680595127	×	✓	✓
	Multi_Env_18	SU4404595934	SU4404595934	×	×	×
	Multi_Env_19	SU4533196217	SU4533196217	×	×	×
	Multi_Env_20	SU4552495506	SU4552495506	×	×	×
	Multi_Env_21	SU4646195590	SU4646195590	×	×	×
	Multi_Env_22	SU4684695956	SU4684695956	×	×	×
	Multi_Env_23	SU4668996903	SU4668996903	×	×	✓
	Multi_Env_24	SU4777196486	SU4777196486	×	×	×
	Multi_Env_25	SU4773996127	SU4763396089	✓	×	×
	Multi_Env_26	SU4945494835	SU4945494835	×	×	×
	Multi_Env_27	SU4996294187	SU4996294187	×	×	×
	Multi_Env_28	SU4843395390	SU4843195391	✓	×	×
River Thames	Ses_Eco_4_S1	SU4961296587	SU4961296587	×	✓	✓

Waterbody	Site ID	Final NGR	Initial NGR	NGR changed	Surveyed in spring 2024	Surveyed in summer 2024
	Ses_Eco_5_S1	SU4977494862	SU4977494862	×	✓	✓
	Ses_Eco_5_S2	SU5018194418	SU5018194418	×	✓	✓
	Ses_Eco_5_S3	SU5479094721	SU5479094721	×	✓	✓
	Ses_Eco_6a_S2	SU6519377426	SU6519377426	×	✓	✓
	Ses_Eco_6b_S1	SU7821985126	SU7821985126	×	✓	✓
	Ses_Eco_6c_S1	SU9031485554	SU9031485554	×	✓	✓
	Ses_Eco_6c_S2	SU9852076900	SU9852076900	×	✓	✓
	Ses_Eco_7_S1	SU9929175507	SU9929175507	×	✓	✓
	Ses_Eco_8_S1	TQ0107772380	TQ0107772380	×	✓	✓
	Ses_Eco_9_S1	TQ0499968345	TQ0499968345	×	✓	✓
	Ses_Eco_10_S1	TQ0790366364	TQ0790366364	×	✓	✓

2.3 Macroinvertebrates

2.3.1 Table 2.2 provides a summary of the Gate 3 macroinvertebrate survey locations in 2024, including their corresponding NGR. Survey locations are shown in Annex 2.

Table 2.2 Macroinvertebrate survey locations (sites where land access was available in 2024 are highlighted in grey).

Water-body	Site ID	Active NGR	Original NGR	NGR changed from Original NGR	Surveyed in spring 2024	Surveyed in summer 2024	Surveyed in autumn 2024
	Multi_Env_1	SU4542090095	SU4542090095	×	×		

Water-body	Site ID	Active NGR	Original NGR	NGR changed from Original NGR	Surveyed in spring 2024	Surveyed in summer 2024	Surveyed in autumn 2024
Ock catchment	Multi_Env_2	SU4381190505	SU4381190505	×	✓	✓	✓
	Multi_Env_3	SU4295090448	SU4295090448	×	✓	×	✓
	Multi_Env_4	SU4266291579	SU4259091191	✓	✓	×	✓
	Multi_Env_5	SU4364391485	SU4366991343	✓	✓	✓	✓
	Multi_Env_6	SU4311991745	SU4311991745	×	✓	✓	✓
	Multi_Env_7	SU4352992389	SU4352992389	×	✓	×	✓
	Multi_Env_8	SU4423193800	SU4382793180	✓	✓	×	✓
	Multi_Env_9	SU4547493791	SU4547493791	×	✓	✓	✓
	Multi_Env_10	SU4270594810	SU4270594810	×	×	×	×
	Multi_Env_11	SU4311294884	SU4311294884	×	×	×	×
	Multi_Env_12	SU4316994669	SU4316994669	×	×	×	×
	Multi_Env_13	SU4414294906	SU4414294906	×	×	×	×
	Multi_Env_14	SU4526294543	SU4526294543	×	✓	✓	✓
	Multi_Env_15	SU4606594897	SU4606594897	×	✓	×	✓
	Multi_Env_16	SU4696394641	SU4696394641	×	✓	×	✓
	Multi_Env_17	SU4680595127	SU4680595127	×	✓	✓	✓
	Multi_Env_18	SU4404595934	SU4404595934	×	×	×	×
	Multi_Env_19	SU4533196217	SU4533196217	×	×	×	×

Water-body	Site ID	Active NGR	Original NGR	NGR changed from Original NGR	Surveyed in spring 2024	Surveyed in summer 2024	Surveyed in autumn 2024
	Multi_Env_20	SU4552495506	SU4552495506	×	×	×	×
	Multi_Env_21	SU4646195590	SU4646195590	×	×	×	×
	Multi_Env_22	SU4684695956	SU4684695956	×	×	×	×
	Multi_Env_23	SU4668996903	SU4668996903	×	×	✓	×
	Multi_Env_24	SU4777196486	SU4777196486	×	×	×	×
	Multi_Env_25	SU4773996127	SU4763396089	✓	×	×	×
	Multi_Env_26	SU4945494835	SU4945494835	×	×	×	×
	Multi_Env_27	SU4996294187	SU4996294187	×	×	×	×
	Multi_Env_28	SU4843395390	SU4843195391	×	×	×	×
River Thames	Ses_Eco_4_S1	SU4970996341	SU4970996341	×	✓	✓	✓
	Ses_Eco_5_S1	SU4973494879	SU4973494879	×	✓	✓	✓
	Ses_Eco_5_S2	SU5028394422	SU5028394422	×	✓	✓	✓
	Ses_Eco_5_S3	SU5478394746	SU5478394746	×	×	✓	✓
	Ses_Eco_6a_S2	SU6551677460	SU6551677460	×	✓	✓	✓
	Ses_Eco_6b_S1	SU7826385124	SU7826385124	×	✓	✓	✓
	Ses_Eco_6c_S1	SU9040785496	SU9040785496	×	✓	✓	✓
	Ses_Eco_6c_S2	SU9852676822	SU9852676822	×	✓	✓	✓
	Ses_Eco_7_S1	SU9924275500	SU9924275500	×	✓	✓	✓

Water-body	Site ID	Active NGR	Original NGR	NGR changed from Original NGR	Surveyed in spring 2024	Surveyed in summer 2024	Surveyed in autumn 2024
	Ses_Eco_8_S1	TQ0119072359	TQ0124572292	✓	✓	✓	✓
	Ses_Eco_9_S1	TQ0499968345	TQ0499968345	×	✓	✓	✓
	Ses_Eco_10_S1	TQ0794566341	TQ0794566341	×	✓	✓	✓

2.4 Depressed river mussel

2.4.1 Table 2.3 provides a summary of the Gate 3 depressed river mussel survey locations in 2024, including their corresponding NGR. Survey locations are shown in Annex 3.

Table 2.3 Depressed river mussel survey locations (sites where land access was available in 2024 are highlighted in grey).

Waterbody	Site ID	Active NGR	Original NGR	NGR changed from Original NGR	Surveyed in summer 2024
River Thames	Ses_Eco_4_S1	SU 49711 96369	SU 49652 96561	×	✓
		SU 49686 96484	SU 49672 96481	✓	✓
		SU 49662 96562	SU 49716 96327	✓	✓
	Ses_Eco_5_S1	SU 49777 94875	SU 49867 95104	✓	✓
		SU 49817 94980	SU 49796 94942	✓	✓
		SU 49777 94875	SU 49777 94875	×	×
	Ses_Eco_5_S2	SU 50269 94360	SU 50146 94424	✓	✓
		SU 50243 94419	SU 50260 94409	✓	✓
		SU 50107 94389	SU 50269 94360	✓	✓

Waterbody	Site ID	Active NGR	Original NGR	NGR changed from Original NGR	Surveyed in summer 2024
	Ses_Eco_5_S3	SU 54749 94684	SU 54667 94170	✓	✓
		SU 54681 94474	SU 54682 94478	✓	✓
		SU 54669 94429	SU 54786 94700	✓	✓

3 Methodologies

3.1.1 Full details of these methods are included in a detailed specification for the surveys (Thames Water, 2024).

3.2 Invasive Non-Native Species

Survey

3.2.1 Surveys were completed by Ricardo Energy & Environment (REE) in April, May, July and August. For each location that was surveyed (see Table 2.1), the length of riverbank was defined and the three-part, semi-quantitative multi-habitat survey (MHS) were carried out (Sibley *et al.,* 2022) in spring, summer and autumn which comprised of:

- A visual assessment for the presence of aquatic (floating and marginal) macrophytes, artificial structures or substrate (for subsequent sampling) and non-native fauna (e.g. colonies of molluscs or burrowing activity) aided by binoculars and/or bathyscope where necessary
- Active macrophyte sampling using a series of grapnel throws (3x5) for each MHS
- A targeted macroinvertebrate INNS sampling for three minutes from the bankside and/or shallow margins (where permitted) using a combination of sweeps, dredges, scrapes and manual searching. Sampling will actively target multiple habitats where available, including soft, coarse and artificial substrates and
- The MHS method was supplemented by environmental DNA (eDNA) surveys which were sent for laboratory analysis.

Laboratory analysis

3.2.2 Macroinvertebrate sorting and identification followed standard laboratory methods. Following collection, the eDNA samples were also analysed in the laboratory. The following species groups were included as a minimum:

- Freshwater Unionid mussels (Metabarcoding)
- Freshwater Venerid mussels (excluding Unionid mussels) (Metabarcoding) and
- Signal crayfish (*Pacifastacus leniusculus*) (qPCR).

Reporting

3.2.3 The specifications agreed with the Environment Agency requires that Excel data files including raw catch data and all calculations are provided. This should include, as a minimum:

- Factual summaries of the INNS survey methods, data analysis, and baseline results per site and
- Diversity and abundance of each species observed during visual observation. Diversity should be based on eDNA results. The data will inform the distribution of INNS and the risk of providing additional pathways and altering habitat suitability to favour them.

3.3 Macroinvertebrates

Survey

3.3.1 Surveys were completed by REE in April/May, August and October/November of 2024. Prior to collecting each macroinvertebrate sample at each of the locations listed in Table 2.2, a site walkover was completed to capture key environmental parameters (e.g., in-situ water quality, substrate composition) required to determine the expected diversity and abundancies of the biological elements. Macroinvertebrate samples were collected in spring, summer, and autumn in accordance with the EA's sampling methodology (Environment Agency, 2009). Samples were preserved in Industrial Methylated Spirit (IMS) 95% to allow preservation for laboratory processing.

Laboratory analysis

3.3.2 Laboratory analyses was commissioned by REE in line with the requirements of the EA Operational Instruction 024_08 (2014) by trained macroinvertebrate taxonomists in fully equipped laboratories. In accordance with EA Operational Instruction, the Quality Assurance (QA) procedure for laboratory analysis was quantified in terms of gains and losses in the number of taxa recorded by the primary analyst and the QA analyst. Laboratory analyses of macroinvertebrate samples was undertaken to mixed taxon level (TL5).

Reporting

3.3.3 The macroinvertebrate survey results were completed by REE. The specifications agreed with the Environment Agency requires that detailed Excel data files including raw data and all calculations should be provided in a format agreed with the Applicant. This includes, as a minimum:

- Species data
- Biological metric scores
- All environmental variables collected and used to generate O:E scores for each location

3.3.4 Macroinvertebrate data was analysed to determine the following metrics:

- Number of Scoring Taxa (NTaxa) is a count of the number of macroinvertebrate taxa that have a score in relation to a particular index.
- Whalley, Hawkes, Paisley & Trigg (WHPT) and Average Score Per Taxon (ASPT) values (WFD-UKTAG, 2021) are scores that are derived based on the sensitivity of particular taxa.
- Lotic-invertebrate Index for Flow Evaluation (LIFE) index (Chadd *et al.,* 1999) is a scoring system developed to assess the potential impacts of low flows / changes in flow regime based on the macroinvertebrate communities present.
- Proportion of Sediment-sensitive Invertebrates (PSI) index (Chadd *et al.,* 2013) uses the sensitivity of macroinvertebrate communities to fine sediment to determine the coverage of the streambed by fine sediments. Fine sediment deposition is often associated with lows flows, and sources of sediment can originate from agricultural or urban runoff, and

- Community Conservation Index (CCI) score (Chadd & Extence, 2004) is used to assess the conversation value of the macroinvertebrate populations present and identify any unusual or rare species.

3.3.5 For each sample, the River Invertebrate Classification Tool (RICT) (WFD-UKTAG, 2021) was used to contextualise the scores. RICT deploys the RIVPACS (River Invertebrate Prediction and Classification System) (Wright, 1997) model to predict site specific reference values, based on various physical parameters (as defined within) of the sample sites, including altitude, gradient, distance from source, discharge category, alkalinity, and substrates present against which the scores can be evaluated.

3.3.6 The model generates expected values for each metric so that observed/expected ratios can be derived (referred to as Environmental Quality Index (EQI)). For ASPT and NTAXA, the EQIs are then multiplied by a correcting factor to generate Environmental Quality Ratios (EQRs), which are then combined to be used for WFD classifications (High, Good, Moderate, Poor, Bad) (Table 3.1). The overall WFD status classification is determined by taking an average of the ASPT EQRs and NTAXA EQRs from both seasons and using the worst class indicated by the two indices. This output generated by RICT is called the Minimum of NTaxa and ASPT or MINTA (WFD-UKTAG, 2021).

3.3.7 For PSI and LIFE scores, which are not used for WFD classifications, the model only generates expected values for each sample, which can then be used to calculate EQIs. EQIs were then compared to threshold values, which are used for demonstrating impacts from low flows and / or fine sediments on macroinvertebrate communities. A threshold of 0.94 is used to indicate the presence of flow stressed macroinvertebrate communities (Extence *et al.,* 2017; Environment Agency, 2012). So therefore, a LIFE EQI score of less than 0.94 may indicate that flow is a possible pressure acting on an ecological community at a site. A threshold of 0.70 is used to indicate the presence of sediment stressed macroinvertebrate communities (Turley *et al.,* 2016). So therefore, a PSI EQI score of less than 0.70 may indicate that there is fine sediment pressure at a site.

Table 3.1 EQR's and WFD status thresholds for WHPT NTAXA and WHPT ASPT metrics.

Status boundary	WHPT NTAXA EQR	WHPT ASPT EQR
High / Good	0.80	0.97
Good / Moderate	0.68	0.86
Moderate / Poor	0.56	0.72
Poor / Bad	0.47	0.59

3.4 Depressed river mussel

Survey and analysis

3.4.1 Net search surveys were carried out in August 2024 at sites on the River Thames, three of which had three subsites and one of which had two subsites (Table 2.3) using a long-handled metal-framed kick net within marginal areas with compact muddy, or sandy sediment. Where ideal habitat was not visible to the eye, the net was be dragged at full

extension and frequently checked for bivalves. Any shells or live bivalves were transferred to a bucket of water.

3.4.2 Where the water was shallow and clear enough, the substrate was also viewed by eye or with the aid of a bathyscope and bivalves picked by hand. Where rafts of empty bivalve shells occurred, they were also inspected for possible DRM.

3.4.3 On completion of the timed survey, the bivalves, live and shells, were sorted into piles of probable species which were then checked by an experienced taxonomist and numbers recorded.

3.4.4 At each sub-site notes were made of any INNS seen or features of interest and photographs taken of the habitat and catch. Where necessary, shells or photographs were taken for laboratory confirmation by an experienced taxonomist.

Reporting

3.4.5 The macroinvertebrate survey results were completed by REE. These data should be requested from Thames Water. The specifications agreed with the Environment Agency requires that detailed Excel data files including raw data and all calculations should be provided in a format agreed with the Applicant. This includes, as a minimum:

- Species data, and
- Factual summaries of the survey methods, data analysis, and baseline results per site.

4 Results

4.1.1 Environmental variables for each survey location on the River Thames and within the Ock catchment are shown below in Table 4.1

Table 4.1 Environmenal variables on the River Thames and Ock catchment.

Waterbody	Site ID	NGR	WFD waterbody ID	Altitude (mAOD)	Slope	Distance from source	Discharge category	Width (m)	Depth (cm)	Bedrock	Boulders/cobbles	Pebbles/gravel	Sand	Silt/clay	Conductivity
River Thames	Ses_Eco_4_S1	SU4970996341	GB106039030334	50	0	115	8	53	224	0	0	60	20	20	559.08
	Ses_Eco_5_S1	SU4973494879	GB106039030334	50	0	116	8	55	300	0	0	60	10	30	559.87
	Ses_Eco_5_S2	SU5028394422	GB106039030334	50	0	117	8	92	250	0	0	50	30	20	563.12
	Ses_Eco_5_S3	SU5478394746	GB106039030334	48	0	122	8	50	200	0	0	20	20	60	665.15
	Ses_Eco_6a_S2	SU6551677460	GB106039030331	39	0	150	8	63	300	0	0	30	20	50	565.48
	Ses_Eco_6b_S1	SU7826385124	GB106039023233	30	0	170	8	32	200	0	10	60	10	20	790
	Ses_Eco_6c_S1	SU9040785496	GB106039023233	24	0	185	9	40	300	0	0	85	0	15	791.79
	Ses_Eco_6c_S2	SU9852676822	GB106039023231	17	0	200	9	58	250	0	0	40	30	30	796.26

Waterbody	Site ID	NGR	WFD waterbody ID	Altitude (mAOD)	Slope	Distance from source	Discharge category	Width (m)	Depth (cm)	Bedrock	Boulders/cobbles	Pebbles/gravel	Sand	Silt/clay	Conductivity
	Ses_Eco_7_S1	SU9924275500	GB106039023231	17	0	202	9	30	300	0	5	80	5	10	787.61
	Ses_Eco_8_S1	TQ0119072359	GB106039023231	14	0	202	9	50	300	0	0	65	0	35	645.52
	Ses_Eco_9_S1	TQ0499968345	GB106039023232	12	0	202	9	57	250	0	10	50	0	40	669.52
	Ses_Eco_10_S1	TQ0794566341	GB106039023232	9	0	202	9	50	300	0	0	40	40	20	469.99
Ock catchment	Multi_Env_2	SU4381190505	GB106039023360	64	1	1.7	1	1.4	15	0	0	30	0	70	970
	Multi_Env_3	SU4295090448	GB106039023360	66	1	2.6	1	2	40	0	0	0.	0	100	990
	Multi_Env_4	SU4266291579	GB106039023360	67	1	1	1	0.9	5	0	0	30	10	60	1048.3
	Multi_Env_5	SU4364591485	GB106039023360	67	1	3	1	2.4	70	0	0	0	0	100	989.02
	Multi_Env_6	SU4311991745	GB106039023360	63	1	4	1	1.4	15	0	0	15	0	85	854
	Multi_Env_7	SU4352992389	GB106039023360	62	1	4	1	1.6	40			0	0	100	927
	Multi_Env_8	SU4423193800	GB106039023360	59	1	5.5	1	2.2	40	0	0	20	0	80	837.14

Waterbody	Site ID	NGR	WFD waterbody ID	Altitude (mAOD)	Slope	Distance from source	Discharge category	Width (m)	Depth (cm)	Bedrock	Boulders/cobbles	Pebbles/gravel	Sand	Silt/clay	Conductivity
	Multi_Env_9	SU4547493791	GB106039023360	61	1	0.5	1	2	30	0	0	10	0	90	635.49
	Multi_Env_14	SU4526294543	GB106039023360	57	1	7	1	2.1	25	0	2	38	10	50	826.45
	Multi_Env_15	SU4606594897	GB106039023360	56	1	5	1	2.1	90	0	0	0	0	100	520.24
	Multi_Env_16	SU4696394641	GB106039023360	57	1	1	1	1.8	10	0	0	0	0	100	912.54
	Multi_Env_17	SU4680595127	GB106039023360	54	1	1	1	1.5	25	0	0	0	0	100	957.18
	Multi_Env_23	SU4668996903	GB106039023360	57	1	5.73	1	3	20	0	0	50	30	20	789.01

4.2 Invasive Non-Native Species

River Thames survey locations

4.2.1 A total of 29 INNS were recorded during targeted multi-habitat surveys and eDNA surveys across the 12 sites on the Thames in 2024 (Table 4.2). The most abundant species was the New Zealand mud snail *Potamopyrgus antipodarum*, with 2,828 individuals recorded across all surveys, and was recorded at every site. It was first introduced to the UK in 1852 and is now naturalised, widespread and common in many areas (Seddon *et al.,* 2014) and is considered to have a moderate impact (WFD UKTAG, 2015).Other prominent species included the Caspian mud shrimp *Chelicorophium curvispinum* (first introduced in 1930s and now widespread) (Sibley *et al.,* 2022) and demon shrimp *Dikerogammarus haemobaphes* which is considered a high-risk (Aldridge, 2013) and high impact (WFD UKTAG, 2015) species), which had 2,154 and 1,040 individuals recorded respectively, and were also both recorded at every site.

4.2.2 The only invasive macrophyte species recorded at every site was Nutall's waterweed *Elodea nuttallii.* Signal crayfish *Pacifastacus leniusculus* was detected via eDNA sampling at 7 of the River Thames Survey Locations. Both Nuttall's waterweed and signal crayfish are listed on Schedule 9 of the Wildlife & Countryside Act (1981) (as amended) and are considered a high-risk (Non-native Species Secretariat, 2011a; Non-native Species Secretariat, 2011b) and high impact (WFD UKTAG, 2015) species. The only invasive fish species to be recorded was Zander *Sander lucioperca*, which was detected via eDNA at 2 sites. It is considered to be a moderate-risk (Davies, 2021) and moderate impact (WFD UKTAG, 2015) species.

4.2.3 Twelve species were also recorded during the separate macroinvertebrate surveys at the twelve sites on the River Thames. This included 3,934 individual demon shrimp which were recorded at all sites. Other species present at all sites includes New Zealand mud snail, Ponto-Caspian mud shrimp *Chelicorophium robustum* (first recorded in the River Thames in 2021 (Sibley *et al.,* 2022)), Asian clam *Corbicula fluminea* (considered a high-risk (Zieritz, 2016) and high impact (WFD UKTAG, 2015) species), and the polychaete worm *Hypania invalida* (considered to be of unknown impact (WFD UKTAG, 2015)).

Table 4.2 INNS recorded on the River Thames in 2024.

Site	NGR	Date	Species	Count
SES_ECO_4_S1	SU4961296587	09/04/2024	*Hypania invalida*	4
			Branchiura sowerbyi	1
			Corbicula fluminea	1
			Physella acuta/gyrina	28
			Potamopyrgus antipodarum	38
			Ferrissia wautieri	1
			Chelicorophium curvispinum	19
			Crangonyx pseudogracilis/floridanus sens. lat.	117

Site	NGR	Date	Species	Count
			Dikerogammarus haemobaphes	6
			Elodea nuttallii	P
		31/07/2024	*Hypania invalida*	7
			Corbicula fluminea	10
			Dreissena polymorpha	S (1)
			Physella acuta/gyrina	24
			Potamopyrgus antipodarum	73
			Chelicorophium curvispinum	17
			Crangonyx pseudogracilis/floridanus sens. lat.	25
			Dikerogammarus haemobaphes	37
			Pacifastacus leniusculus	1
			Elodea nuttallii	P
			Impatiens capensis	P
			Impatiens glandulifera	P
			Pacifastacus leniusculus	eDNA - Present
SES_ECO_5_S1	SU4977494862	09/04/2024	*Branchiura sowerbyi*	1
			Corbicula fluminea	7
			Dreissena polymorpha	S (1)
			Dreissena sp. (juv)	2
			Physella acuta/gyrina	12
			Potamopyrgus antipodarum	105
			Chelicorophium curvispinum	27
			Crangonyx pseudogracilis/floridanus sens. lat.	45
			Dikerogammarus haemobaphes	11
			Elodea nuttallii	P
		31/07/2024	*Branchiura sowerbyi*	1
			Corbicula fluminea	7
			Dreissena polymorpha	S (1)
			Dreissena sp. (juv)	2
			Physella acuta/gyrina	12
			Potamopyrgus antipodarum	105
			Chelicorophium curvispinum	27

Site	NGR	Date	Species	Count
			Crangonyx pseudogracilis/floridanus sens. lat.	45
			Dikerogammarus haemobaphes	11
			Elodea nuttallii	P
			Pacifastacus leniusculus	eDNA - Present
SES_ECO_5_S2	SU5018194418	09/04/2024	*Hypania invalida*	8
			Corbicula fluminea	6
			Dreissena rostriformis bugensis	1
			Physella acuta/gyrina	9
			Potamopyrgus antipodarum	24
			Chelicorophium curvispinum	51
			Crangonyx pseudogracilis/floridanus sens. lat.	22
			Dikerogammarus haemobaphes	12
			Elodea nuttallii	P
		31/07/2024	*Hypania invalida*	12
			Corbicula fluminea	8
			Dreissena polymorpha	2
			Physella acuta/gyrina	S (12)
			Potamopyrgus antipodarum	56
			Chelicorophium curvispinum	48
			Crangonyx pseudogracilis/floridanus sens. lat.	8
			Dikerogammarus haemobaphes	11
			Elodea nuttallii	P
			Impatiens glandulifera	F
			Pacifastacus leniusculus	eDNA - Present
SES_ECO_5_S3	SU5479094721	09/04/2024	*Hypania invalida*	1
			Physella acuta/gyrina	2
			Potamopyrgus antipodarum	23
			Chelicorophium curvispinum	4
			Crangonyx pseudogracilis/floridanus sens. lat.	35
			Dikerogammarus haemobaphes	7

Site	NGR	Date	Species	Count
		31/07/2024	*Hypania invalida*	2
			Corbicula fluminea	3
			Dreissena polymorpha	1
			Physella acuta/gyrina	S (5)
			Potamopyrgus antipodarum	21
			Chelicorophium curvispinum	4
			Crangonyx pseudogracilis/floridanus sens. lat.	13
			Dikerogammarus haemobaphes	16
			Hemimysis anomala	1
			Pacifastacus leniusculus	1
			Elodea nuttallii	F
			Pacifastacus leniusculus	eDNA - Present
SES_ECO_6a_S2	SU6519377426	09/04/2024	*Hypania invalida*	2
			Branchiura sowerbyi	1
			Dreissena polymorpha	S (2)
			Physella acuta/gyrina	S (7)
			Potamopyrgus antipodarum	43
			Chelicorophium curvispinum	18
			Crangonyx pseudogracilis/floridanus sens. lat.	3
			Dikerogammarus haemobaphes	7
			Elodea nuttallii	P
		31/07/2024	*Hypania invalida*	3
			Corbicula fluminea	1
			Physella acuta/gyrina	2
			Potamopyrgus antipodarum	34
			Chelicorophium curvispinum	7
			Crangonyx pseudogracilis/floridanus sens. lat.	5
			Dikerogammarus haemobaphes	11
			Pacifastacus leniusculus	Ca
			Elodea nuttallii	A
			Elodea canadensis	P

Site	NGR	Date	Species	Count
			Pacifastacus leniusculus	eDNA - Present
SES_ECO_6b_S1	SU7821985126	09/04/2024	*Girardia (Dugesia) tigrina*	1
			Hypania invalida	2
			Corbicula fluminea	1
			Dreissena rostriformis bugensis	1
			Dreissena polymorpha	S (1)
			Physella acuta/gyrina	S (8)
			Potamopyrgus antipodarum	17
			Chelicorophium curvispinum	64
			Crangonyx pseudogracilis/floridanus sens. lat.	7
			Dikerogammarus haemobaphes	2
			Elodea nuttallii	P
		31/07/2024	*Girardia (Dugesia) tigrina*	1
			Hypania invalida	1
			Corbicula fluminea	S (1)
			Dreissena polymorpha	S (1)
			Physella acuta/gyrina	1
			Potamopyrgus antipodarum	4
			Chelicorophium curvispinum	320
			Chelicorophium robustrum	26
			Chelicorophium sp.	60
			Dikerogammarus haemobaphes	24
			Elodea nuttallii	P
			Acorus calamus	P
			Pacifastacus leniusculus	eDNA - Present
SES_ECO_6c_S1	SU9031485554	10/04/2024	*Hypania invalida*	2
			Branchiura sowerbyi	1
			Dreissena polymorpha	6
			Physella acuta/gyrina	S (1)
			Potamopyrgus antipodarum	14
			Chelicorophium curvispinum	45
			Dikerogammarus haemobaphes	6

Site	NGR	Date	Species	Count
		31/07/2024	*Hypania invalida*	T
			Dreissena polymorpha	5
			Physella acuta/gyrina	12
			Potamopyrgus antipodarum	690
			Chelicorophium curvispinum	325
			Crangonyx pseudogracilis/floridanus sens. lat.	21
			Dikerogammarus haemobaphes	27
			Elodea nuttallii	P
			Pacifastacus leniusculus	eDNA - Present
SES_ECO_6c_S2	SU9852076900	10/04/2024	*Dreissena polymorpha*	S (1)
			Physella acuta/gyrina	2
			Potamopyrgus antipodarum	49
			Chelicorophium curvispinum	36
			Chelicorophium robustrum	11
			Chelicorophium sp.	15
			Dikerogammarus haemobaphes	22
			Elodea nuttallii	P
		01/08/2024	*Corbicula fluminea*	1
			Physella acuta/gyrina	1
			Potamopyrgus antipodarum	324
			Chelicorophium curvispinum	23
			Chelicorophium sp.	1
			Crangonyx pseudogracilis/floridanus sens. lat.	1
			Dikerogammarus haemobaphes	21
			Elodea nuttallii	P
			Acorus calamus	P
SES_ECO_7_S1	SU9929175507	10/04/2024	*Hypania invalida*	3
			Corbicula fluminea	S (1)
			Physella acuta/gyrina	2
			Potamopyrgus antipodarum	26
			Chelicorophium curvispinum	7

Site	NGR	Date	Species	Count
			Crangonyx pseudogracilis/floridanus sens. lat.	34
			Dikerogammarus haemobaphes	19
			Elodea nuttallii	P
		01/08/2024	*Hypania invalida*	7
			Corbicula fluminea	1
			Dreissena rostriformis bugensis	1
			Physella acuta/gyrina	S (4)
			Potamopyrgus antipodarum	63
			Chelicorophium curvispinum	13
			Crangonyx pseudogracilis/floridanus sens. lat.	6
			Dikerogammarus haemobaphes	21
			Elodea nuttallii	P
SES_ECO_8_S1	TQ0107772380	10/04/2024	*Hypania invalida*	1
			Dreissena rostriformis bugensis	S (1)
			Dreissena polymorpha	1
			Potamopyrgus antipodarum	5
			Chelicorophium curvispinum	177
			Chelicorophium robustrum	3
			Chelicorophium sp.	7
			Crangonyx pseudogracilis/floridanus sens. lat.	1
			Dikerogammarus haemobaphes	104
		01/08/2024	*Corbicula fluminea*	6
			Dreissena polymorpha	1
			Physella acuta/gyrina	1
			Potamopyrgus antipodarum	24
			Chelicorophium curvispinum	390
			Chelicorophium robustrum	320
			Chelicorophium sp.	75
			Dikerogammarus haemobaphes	14
			Elodea nuttallii	P
SES_ECO_9_S1	TQ0499968345	10/04/2024	*Hypania invalida*	1
			Corbicula fluminea	2

Site	NGR	Date	Species	Count
			Physella acuta/gyrina	4
			Potamopyrgus antipodarum	64
			Chelicorophium curvispinum	17
			Crangonyx pseudogracilis/floridanus sens. lat.	6
			Dikerogammarus haemobaphes	12
			Elodea nuttallii	P
		01/08/2024	*Hypania invalida*	6
			Corbicula fluminea	8
			Dreissena polymorpha	S (2)
			Physella acuta/gyrina	1
			Potamopyrgus antipodarum	163
			Chelicorophium curvispinum	13
			Crangonyx pseudogracilis/floridanus sens. lat.	2
			Dikerogammarus haemobaphes	21
			Elodea nuttallii	P
			Sander lucioperca	eDNA - Present
SES_ECO_10_S1	TQ0790366364	10/04/2024	*Hypania invalida*	6
			Branchiura sowerbyi	1
			Corbicula fluminea	5
			Physella acuta/gyrina	S (3)
			Potamopyrgus antipodarum	27
			Chelicorophium curvispinum	5
			Crangonyx pseudogracilis/floridanus sens. lat.	11
			Dikerogammarus haemobaphes	8
			Elodea nuttallii	P
			Hydrocotyle ranunculoides	P
		01/08/2024	*Dendrocoelum romanodanubiale*	1
			Hypania invalida	1
			Corbicula fluminea	10
			Dreissena polymorpha	S (1)
			Physella acuta/gyrina	7

Site	NGR	Date	Species	Count
			Potamopyrgus antipodarum	660
			Ferrissia wautieri	2
			Chelicorophium curvispinum	17
			Chelicorophium robustrum	9
			Chelicorophium sp.	8
			Crangonyx pseudogracilis/floridanus sens. lat.	5
			Dikerogammarus haemobaphes	28
			Elodea nuttallii	P
			Impatiens glandulifera	P
			Sander lucioperca	eDNA - Present

Key					
S - Empty Shells	T - Tubes	Ca/Cl - Carapace/Claw Remains			
Macrophyte abundance scale:	P - Present	O - Occasional	F - Frequent	A - Abundant	D - Dominant

Ock catchment

4.2.4 A total of five INNS were recorded during targeted multi-habitat surveys and eDNA surveys across the sites on the Ock catchment in 2024 (Table 4.3). The most common species was the New Zealand mud snail, with 216 individuals recorded. It was first introduced to the UK in 1852 and is now naturalised, widespread and common in many areas (Seddon *et al.,* 2014) and is considered to have a moderate impact. The most widespread recorded INNS was *Crangonyx pseudogracilis/floridanus*, which was found at 13 of the sites. *Crangonyx pseudogracilis* was first introduced to the UK in the 1930's and is now naturalised, widespread and common in many areas. Until recently it was the only non-native species of this genus known to be present in the UK. However, in 2017 a related non-native species *Crangonyx floridanus* was identified in the UK for the first time, but it may have been previously overlooked (Mauvisseau *et al.,* 2019). The identification features available to distinguish the two species are slight and it is often not possible to identify individuals to species level using routine laboratory identification techniques. Given this, and consistent with good practice, records of *Crangonyx* are treated as an aggregate.

4.2.5 No INNS were detected via eDNA.

4.2.6 Four species were also recorded during the macroinvertebrate sampling across five sites in the Ock catchment. The most common species was the New Zealand mud snail, with 49 individuals recorded at two separate sites.

Table 4.3 INNS recorded within the Ock catchment in 2024.

Site	NGR	Date	Species	Count
Multi_Env_2	SU4380090513	28/05/2024	*Potamopyrgus antipodarum*	S (6)
			Gammarus pulex/fossarum agg	6
		19/08/2024	*Potamopyrgus antipodarum*	S (4)
			Gammarus pulex/fossarum agg	34
Multi_Env_3	SU4294590447	28/05/2024	*Potamopyrgus antipodarum*	2
			Gammarus fossarum	17
			Gammarus pulex/fossarum agg	2
Multi_Env_4	SU4271691675	28/05/2024	*Crangonyx pseudogracilis/floridanus sens. lat.*	9
			Gammarus pulex/fossarum agg	35
Multi_Env_5	SU4364691464	28/05/2024	*Physella acuta/gyrina*	3
			Crangonyx pseudogracilis/floridanus sens. lat.	2
			Gammarus pulex/fossarum agg	17
		19/08/2024	*Physella acuta/gyrina*	S (1)
			Gammarus pulex/fossarum agg	24
Multi_Env_6	SU4313291809	28/05/2024	*Potamopyrgus antipodarum*	S (3)
			Gammarus fossarum	2
			Gammarus pulex/fossarum agg	7
		19/08/2024	*Potamopyrgus antipodarum*	S (5)
			Ferrissia wautieri	3
			Gammarus pulex/fossarum agg	40
Multi_Env_7	SU4352292325	28/05/2024	*Potamopyrgus antipodarum*	S (2)
			Crangonyx pseudogracilis/floridanus sens. lat.	12
			Gammarus pulex/fossarum agg	14
Multi_Env_8	SU4428493878	29/05/2024	*Crangonyx pseudogracilis/floridanus sens. lat.*	8
			Gammarus pulex/fossarum agg	2
Multi_Env_9	SU4549093828	29/05/2024	*Potamopyrgus antipodarum*	9
			Crangonyx pseudogracilis/floridanus sens. lat.	19
			Gammarus pulex/fossarum agg	7
		20/08/2024	*Potamopyrgus antipodarum*	S (16)

Site	NGR	Date	Species	Count
			Ferrissia wautieri	1
			Gammarus pulex/fossarum agg	2
Multi_Env_14	SU4526294543	29/05/2024	*Crangonyx pseudogracilis/floridanus sens. lat.*	26
			Gammarus pulex/fossarum agg	29
		20/08/2024	*Ferrissia wautieri*	1
			Gammarus pulex/fossarum agg	2
Multi_Env_15	SU4610394903	29/05/2024	*Crangonyx pseudogracilis/floridanus sens. lat.*	63
			Gammarus pulex/fossarum agg	1
Multi_Env_16	SU4696294639	28/05/2024	*Potamopyrgus antipodarum*	168
			Crangonyx pseudogracilis/floridanus sens. lat.	37
			Gammarus pulex/fossarum agg	2
Multi_Env_17	SU4677595179	28/05/2024	*Crangonyx pseudogracilis/floridanus sens. lat.*	23
			Gammarus pulex/fossarum agg	3
		19/08/2024	*Ferrissia wautieri*	69
Multi_Env_23	SU4668996903	19/08/2024	*Potamopyrgus antipodarum*	37
			Gammarus fossarum	130
			Gammarus pulex/fossarum agg	28

Key					
S - Empty Shells	T - Tubes	Ca/Cl - Carapace/Claw Remains			
Macrophyte abundance scale:	P - Present	O - Occasional	F - Frequent	A - Abundant	D - Dominant

4.3 Macroinvertebrates

4.3.1 Plate 1 to Plate 8, below present the NTAXA EQRs, ASPT EQRs, PSI EQIs and LIFE EQIs respectively. Data for each site are discussed separately below and show in Table 4.4 and Table 4.5. Data for each site on the River Thames was provided by REE as averages from samples collected in 2023 and 2024 (Table 4.4, Table 4.5).[1] These are indicative classifications based on the data presented. Only the EA can make formal classifications.

Table 4.4 Results of macroinvertebrate analysis from 2023/2024 River Thames surveys.

Site ID	Site NGR	Survey count	Survey Range	LIFE EQR Score Min - Max (AVG.)	LIFE (Family) Score Min - Max (AVG.)	PSI (Family) EQR Score Min - Max (AVG.)	PSI (Family) Score Min - Max (AVG.)	CCI EQR Score Min - Max (AVG.)	CCI Score Min - Max (AVG.)	WHPT ASPT EQR Score Min - Max (AVG.)	WHPT ASPT EQR Class Min - Max (AVG.) B/P/M/G/H	WHPT ASPT Score Min - Max (AVG.)	WHPT NTAXA EQR Score Min - Max (AVG.)	WHPT NTAXA EQR Class Min - Max (AVG.) B/P/M/G/H	WHPT NTAXA Score Min - Max (AVG.)
Ses_Eco_4_S1	SU4970996341	6	2024 to 2023	0.89 - 1 (0.95)	6.5 - 7.5 (7.02)	0.31 - 0.56 (0.41)	21.21 - 37.5 (28.07)	0.9 - 4.42 (2.46)	9.29 - 34 (19.81)	0.78 - 0.87 (0.82)	M - G (M)	4.98 - 5.53 (5.24)	0.46 - 1.25 (0.77)	B - H (G)	7 - 19 (14)
Ses_Eco_5_S1	SU4973494879	6	2024 to 2023	0.8 - 0.93 (0.88)	6 - 6.81 (6.53)	0.13 - 0.34 (0.24)	9.09 - 22.73 (16.16)	0.46 - 1.7 (1.19)	4.8 - 13 (10.02)	0.73 - 0.88 (0.79)	M - G (M)	4.62 - 5.51 (5.08)	0.07 - 1.13 (0.67)	B - H (M)	1 - 21 (12)
Ses_Eco_5_S2	SU5028394422	6	2024 to 2023	0.8 - 1.01 (0.92)	6 - 7.5 (6.82)	0.19 - 0.92 (0.66)	12.5 - 63.64 (45.17)	0.55 - 2.18 (1.28)	4.2 - 16.67 (11.1)	0.73 - 0.89 (0.81)	M - G (M)	4.46 - 6.14 (5.19)	0.33 - 0.66 (0.43)	B - M (B)	5 - 13 (8)
Ses_Eco_5_S3	SU5478394746	6	2024 to 2023	0.85 - 0.98 (0.92)	6.2 - 7.13 (6.82)	0.12 - 0.58 (0.3)	7.69 - 40 (20.38)	1 - 2.26 (1.41)	10 - 17.5 (12.02)	0.72 - 0.96 (0.82)	P - G (M)	4.88 - 5.66 (5.26)	0.39 - 0.76 (0.57)	B - G (M)	6 - 15 (10)
Ses_Eco_6a_S2	SU6551677460	6	2024 to 2023	0.88 - 0.98 (0.94)	6.57 - 7.22 (6.89)	0.13 - 0.74 (0.36)	8.7 - 50 (24.32)	0.82 - 2.11 (1.28)	6.5 - 16.8 (11.35)	0.78 - 0.88 (0.83)	M - G (M)	4.9 - 5.71 (5.3)	0.57 - 1.34 (0.83)	M - H (H)	9 - 21 (15)
Ses_Eco_6b_S1	SU7826385124	6	2024 to 2023	0.95 - 1.03 (0.98)	7 - 7.56 (7.24)	0.5 - 0.83 (0.59)	34.29 - 57.14 (40.12)	0.99 - 4.29 (2.24)	10.24 - 32.8 (18.26)	0.76 - 0.93 (0.83)	M - G (M)	5.11 - 5.48 (5.32)	0.64 - 1.25 (1.02)	M - H (H)	12 - 22 (18)
Ses_Eco_6c_S1	SU9040785496	6	2024 to 2023	0.92 - 1 (0.96)	6.9 - 7.36 (7.12)	0.35 - 0.69 (0.54)	24.32 - 47.92 (36.87)	1.31 - 3.26 (2.07)	10 - 33.71 (18.48)	0.83 - 0.92 (0.87)	M - G (G)	5.15 - 6.03 (5.57)	0.86 - 1.38 (1.19)	H - H (H)	16 - 26 (21)
Ses_Eco_6c_S2	SU9852676822	5	2024 to 2023	0.88 - 0.94 (0.92)	6.5 - 7.06 (6.82)	0.25 - 0.43 (0.34)	16.67 - 30 (23.07)	0.68 - 2.27 (1.42)	7 - 17.5 (11.86)	0.7 - 0.9 (0.8)	P - G (M)	4.79 - 5.32 (5.09)	0.76 - 1.31 (0.99)	G - H (H)	15 - 20 (17)
Ses_Eco_7_S1	SU9924275500	6	2024 to 2023	0.79 - 0.95 (0.89)	5.8 - 7.08 (6.62)	0.2 - 0.6 (0.46)	13.79 - 41.67 (31.5)	0.38 - 1.55 (1.03)	3.92 - 12.65 (8.74)	0.62 - 0.96 (0.79)	P - G (M)	4.24 - 5.68 (5.01)	0.21 - 1.07 (0.83)	B - H (H)	4 - 21 (15)

[1] MINTA values were not provided and therefore overall WFD classifications are not available. Likewise, the laboratory's overall QA score was not provided and therefore RICT analysis could not be accurately undertaken in order to get MINTA values.

Site ID	Site NGR	Survey count	Survey Range	LIFE EQR Score Min - Max (AVG.)	LIFE (Family) Score Min - Max (AVG.)	PSI (Family) EQR Score Min - Max (AVG.)	PSI (Family) Score Min - Max (AVG.)	CCI EQR Score Min - Max (AVG.)	CCI Score Min - Max (AVG.)	WHPT ASPT EQR Score Min - Max (AVG.)	WHPT ASPT EQR Class Min - Max (AVG.) B/P/M/G/H	WHPT ASPT Score Min - Max (AVG.)	WHPT NTAXA EQR Score Min - Max (AVG.)	WHPT NTAXA EQR Class Min - Max (AVG.) B/P/M/G/H	WHPT NTAXA Score Min - Max (AVG.)
Ses_Eco_8_S1	TQ0119072359	6	2024 to 2023	0.89 - 0.94 (0.92)	6.64 - 6.94 (6.78)	0.19 - 0.32 (0.27)	12.5 - 22.22 (18.19)	0.52 - 2.74 (1.67)	5.33 - 21 (13.64)	0.74 - 0.94 (0.83)	M - G (M)	5.07 - 5.51 (5.31)	0.56 - 1.02 (0.81)	M - H (H)	11 - 20 (14)
Ses_Eco_9_S1	TQ0499968345	6	2024 to 2023	0.86 - 0.95 (0.9)	6.29 - 7 (6.7)	0.21 - 0.37 (0.29)	13.89 - 25.71 (20.08)	0.39 - 4.56 (1.61)	4 - 34.91 (13.1)	0.69 - 0.86 (0.77)	P - M (M)	4.51 - 5.45 (4.91)	0.76 - 1.38 (1.01)	G - H (H)	13 - 21 (18)
Ses_Eco_10_S1	TQ0794566341	6	2024 to 2023	0.9 - 0.96 (0.93)	6.6 - 7 (6.75)	0.21 - 0.46 (0.36)	13.04 - 29.63 (22.79)	0.53 - 3.85 (1.42)	4.36 - 32 (13.09)	0.76 - 0.96 (0.85)	M - G (M)	4.79 - 6.05 (5.38)	0.39 - 1.03 (0.76)	B - H (G)	8 - 21 (15)

Table 4.5 Results of macroinvertebrate analysis from 2024 Ock catchment surveys.

Site ID	Site NGR	Survey count	Survey Range	LIFE EQR Score Min - Max (AVG.)	LIFE (Family) Score Min - Max (AVG.)	PSI (Family) EQR Score Min - Max (AVG.)	PSI (Family) Score Min - Max (AVG.)	CCI EQR Score Min - Max (AVG.)	CCI Score Min - Max (AVG.)	WHPT ASPT EQR Score Min - Max (AVG.)	WHPT ASPT EQR Class Min - Max (AVG.) B/P/M/G/H	WHPT ASPT Score Min - Max (AVG.)	WHPT NTAXA EQR Score Min - Max (AVG.)	WHPT NTAXA EQR Class Min - Max (AVG.) B/P/M/G/H	WHPT NTAXA Score Min - Max (AVG.)
Multi_Env_2	SU4381190505	3	2024	0.85 - 0.9 (0.87)	6.29 - 6.75 (6.46)	0.18 - 0.52 (0.3)	12.5 - 35.71 (20.51)	0.13 - 0.44 (0.23)	1 - 4.5 (2.17)	0.66 - 0.74 (0.69)	P - M (P)	4.34 - 4.53 (4.4)	0.46 - 0.66 (0.57)	B - M (M)	9 - 11 (10)
Multi_Env_3	SU4295090448	2	2024	0.77 - 0.85 (0.81)	5.6 - 6.25 (5.93)	0.19	12.5	0.12 - 0.37 (0.25)	1 - 3.86 (2.43)	0.55 - 0.6 (0.57)	B - P (B)	3.7 - 3.86 (3.78)	0.43 - 0.45 (0.44)	B - B (B)	9
Multi_Env_4	SU4266291579	2	2024	0.89 - 0.91 (0.9)	6.57 - 6.67 (6.62)	0.26 - 0.42 (0.34)	17.65 - 27.78 (22.71)	0.1 - 0.52 (0.31)	1 - 4 (2.5)	0.57 - 0.57 (0.57)	B - B (B)	3.75 - 3.9 (3.83)	0.43 - 0.46 (0.44)	B - B (B)	8 - 9 (9)
Multi_Env_5	SU4364591485	3	2024	0.88 - 0.91 (0.9)	6.4 - 6.63 (6.53)	0.22 - 0.3 (0.26)	13.33 - 18.18 (16.06)	0.11 - 0.35 (0.19)	1 - 3.75 (1.92)	0.55 - 0.61 (0.58)	B - P (B)	3.39 - 3.92 (3.6)	0.32 - 0.51 (0.44)	B - P (B)	7 - 11 (9)
Multi_Env_6	SU4311991745	3	2024	0.89 - 0.9 (0.9)	6.5 - 6.75 (6.64)	0.29 - 0.4 (0.33)	20 - 27.27 (22.42)	0.13 - 0.16 (0.14)	1 - 1.33 (1.19)	0.5 - 0.57 (0.53)	B - B (B)	3.35 - 3.46 (3.42)	0.32 - 0.39 (0.36)	B - B (B)	6 - 7 (6)

Site ID	Site NGR	Survey count	Survey Range	LIFE EQR Score Min - Max (AVG.)	LIFE (Family) Score Min - Max (AVG.)	PSI (Family) EQR Score Min - Max (AVG.)	PSI (Family) Score Min - Max (AVG.)	CCI EQR Score Min - Max (AVG.)	CCI Score Min - Max (AVG.)	WHPT ASPT EQR Score Min - Max (AVG.)	WHPT ASPT EQR Class Min - Max (AVG.) B/P/M/G/H	WHPT ASPT Score Min - Max (AVG.)	WHPT NTAXA EQR Score Min - Max (AVG.)	WHPT NTAXA EQR Class Min - Max (AVG.) B/P/M/G/H	WHPT NTAXA Score Min - Max (AVG.)
Multi_Env_7	SU4352992389	2	2024	0.85 - 0.85 (0.85)	6.2 - 6.25 (6.23)	0.17 - 0.22 (0.19)	11.11 - 14.29 (12.7)	0.12 - 0.42 (0.27)	1 - 4.33 (2.67)	0.53 - 0.53 (0.53)	B - B (B)	3.4 - 3.54 (3.47)	0.35 - 0.57 (0.46)	B - M (B)	7 - 12 (10)
Multi_Env_8	SU4423193800	2	2024	0.86 - 0.96 (0.91)	6.38 - 7 (6.69)	0.32 - 0.35 (0.34)	22.22 - 23.53 (22.88)	0.97 - 1.29 (1.13)	10	0.58 - 0.69 (0.63)	B - P (P)	4 - 4.48 (4.24)	0.46 - 0.48 (0.47)	B - P (B)	9
Multi_Env_9	SU4547493791	3	2024	0.84 - 0.9 (0.86)	6.15 - 6.63 (6.37)	0.12 - 0.46 (0.29)	7.69 - 31.25 (19.47)	0.14 - 0.53 (0.36)	1.11 - 4.29 (3.18)	0.55 - 0.62 (0.58)	B - P (B)	3.44 - 4.01 (3.73)	0.46 - 0.71 (0.62)	B - G (M)	9 - 13 (11)
Multi_Env_14	SU4526294543	3	2024	0.84 - 0.96 (0.89)	6.3 - 7 (6.58)	0.13 - 0.5 (0.28)	9.09 - 33.33 (19.14)	0.16 - 0.39 (0.31)	1.2 - 4 (2.73)	0.57 - 0.69 (0.62)	B - P (P)	3.36 - 4.5 (3.97)	0.56 - 0.85 (0.72)	M - H (G)	11 - 14 (13)
Multi_Env_15	SU4606594897	2	2024	0.75 - 0.81 (0.78)	5.29 - 5.78 (5.53)	0	0	0.11 - 0.41 (0.26)	1.14 - 4.5 (2.82)	0.6 - 0.6 (0.6)	P - P (P)	3.59 - 3.65 (3.62)	0.31 - 0.38 (0.35)	B - B (B)	8 - 10 (9)
Multi_Env_16	SU4696394641	2	2024	0.83 - 0.86 (0.84)	6.1 - 6.29 (6.19)	0.12 - 0.16 (0.14)	8 - 10.53 (9.26)	0.12 - 0.47 (0.29)	1 - 4.88 (2.94)	0.54 - 0.6 (0.57)	B - P (B)	3.49 - 4.1 (3.79)	0.48 - 0.51 (0.5)	P - P (P)	9 - 10 (10)
Multi_Env_17	SU4680595127	3	2024	0.8 - 0.84 (0.82)	5.86 - 6.3 (6.05)	0.08 - 0.14 (0.1)	5.56 - 9.09 (6.97)	0.12 - 1.54 (0.6)	1 - 16 (6.04)	0.48 - 0.56 (0.52)	B - B (B)	2.8 - 3.61 (3.34)	0.41 - 0.61 (0.49)	B - M (P)	8 - 10 (9)
Multi_Env_23	SU4668996903	2	2024	1.08 - 1.12 (1.1)	8.13 - 8.29 (8.21)	0.68 - 0.83 (0.75)	47.06 - 57.14 (52.1)	0.13 - 0.52 (0.33)	1 - 5.4 (3.2)	0.87 - 0.94 (0.9)	G - G (G)	5.1 - 6.44 (5.77)	0.41 - 0.72 (0.57)	B - G (M)	8 - 11 (10)

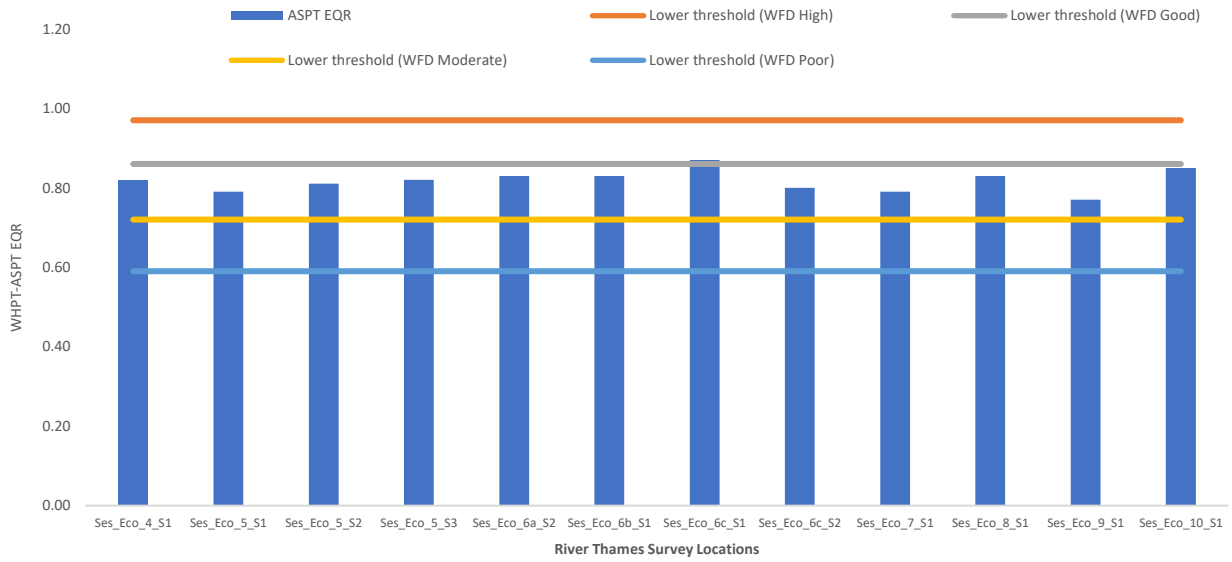

Plate 1 A graph showing WHPT-ASPT EQRs against WFD thresholds for the 2023/2024 River Thames Survey Locations.

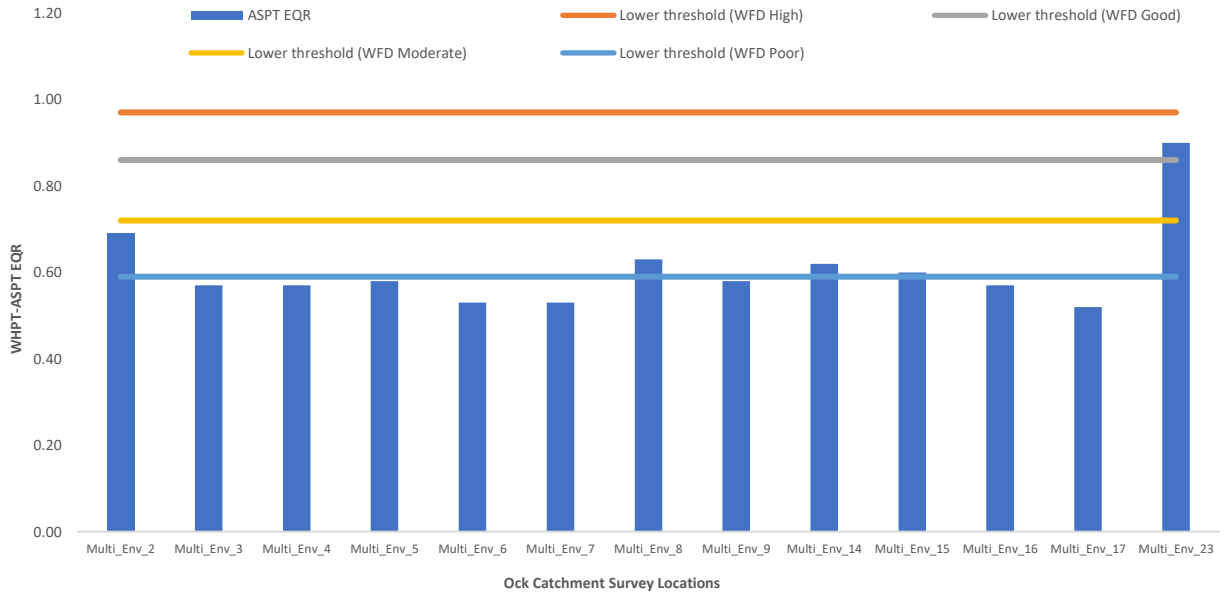

Plate 2 A graph showing WHPT-ASPT EQRs against WFD thresholds for the 2024 Ock catchment Survey Locations.

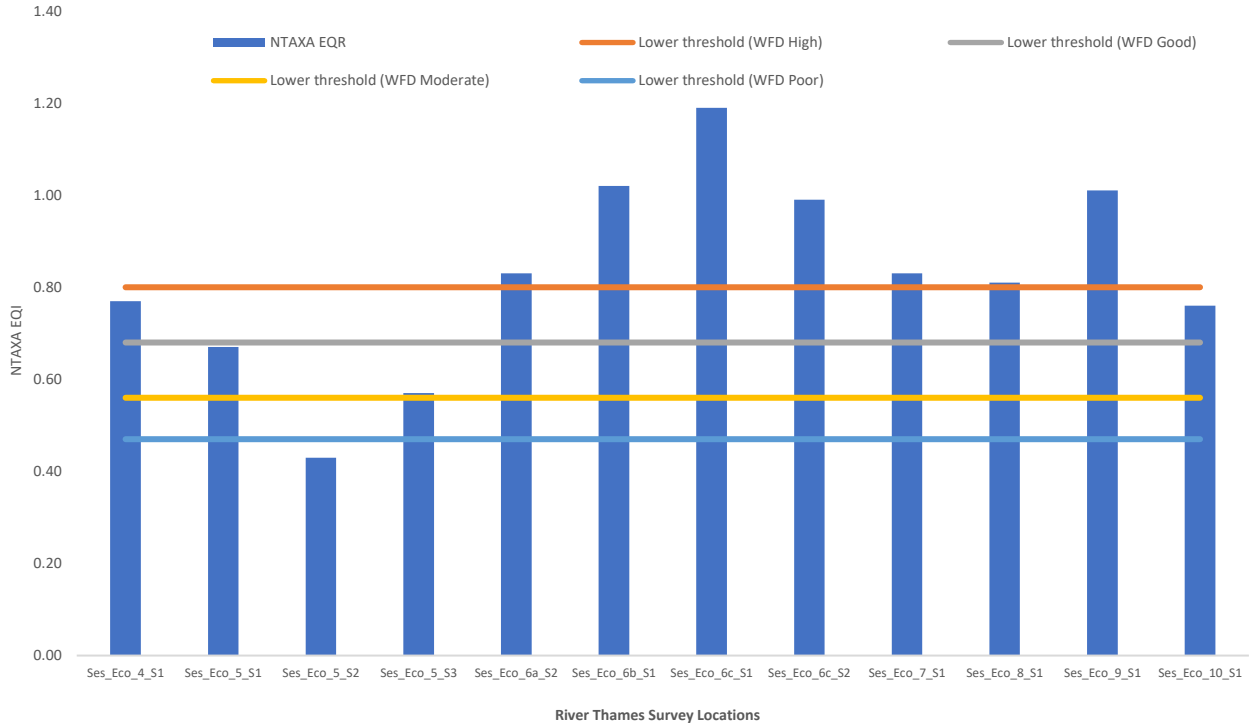

Plate 3 A graph showing WHPT-NTAXA EQRs against WFD thresholds for the 2023/2024 River Thames Survey Locations.

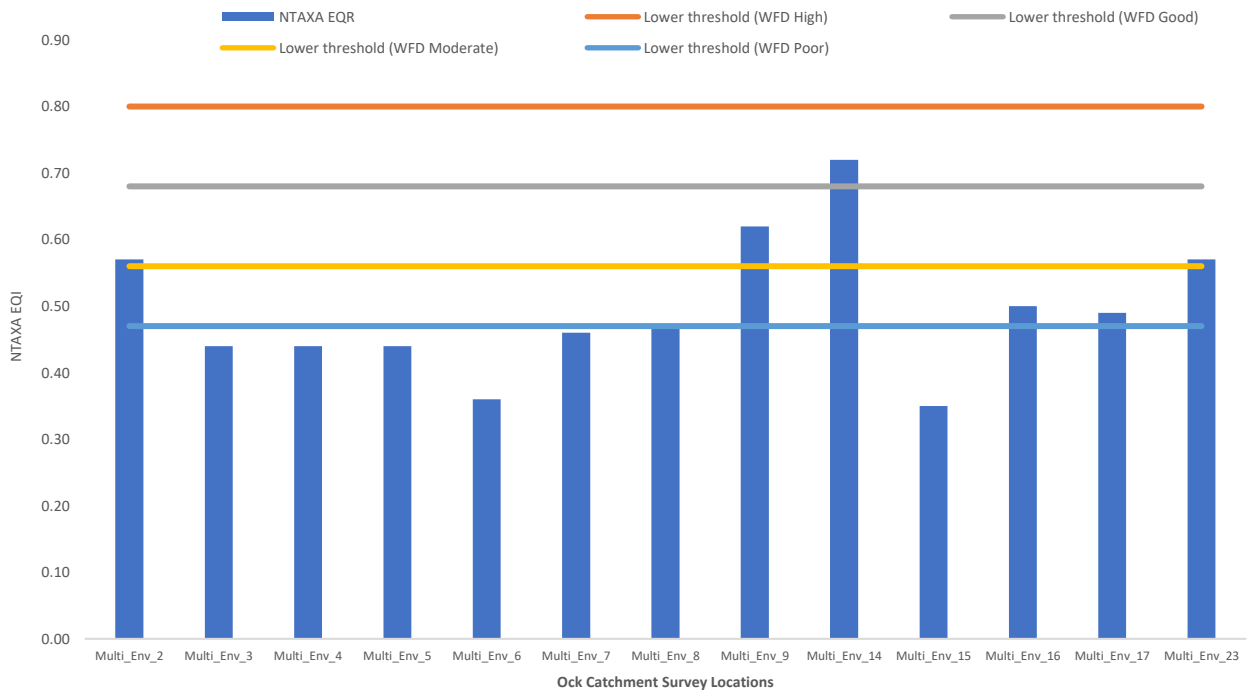

Plate 4 A graph showing WHPT-NTAXA EQRs against WFD thresholds for the 2024 Ock catchment survey locations.

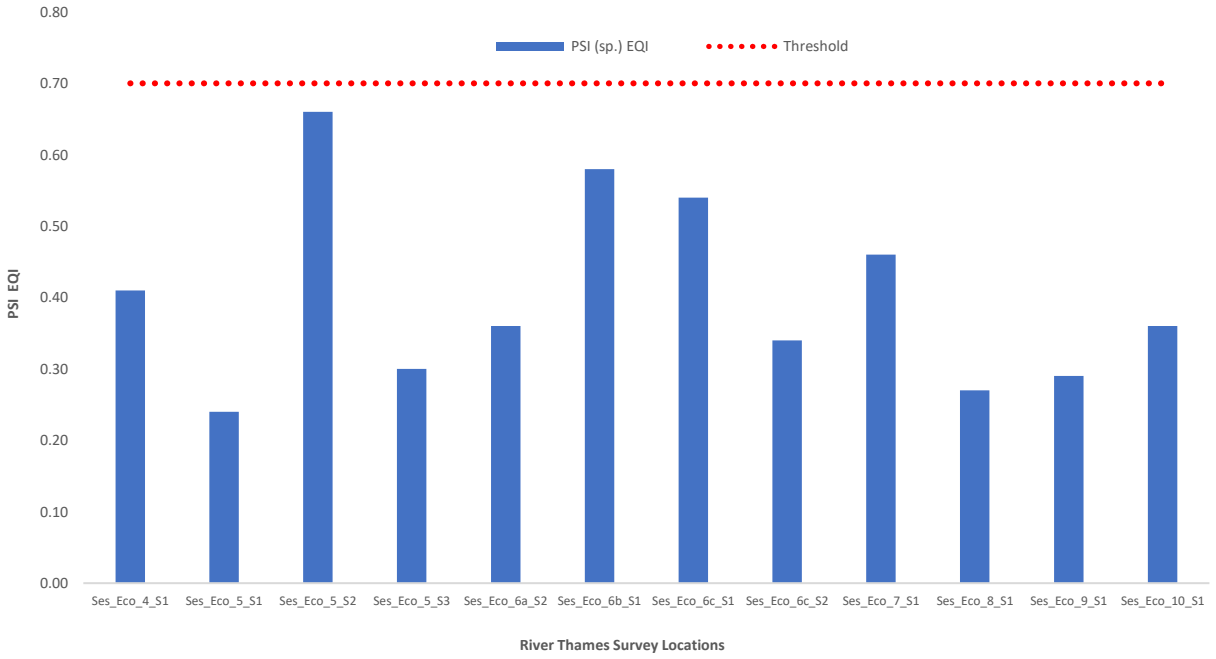

Plate 5 A graph showing PSI EQIs against its threshold for the 2023/2024 River Thames survey locations.

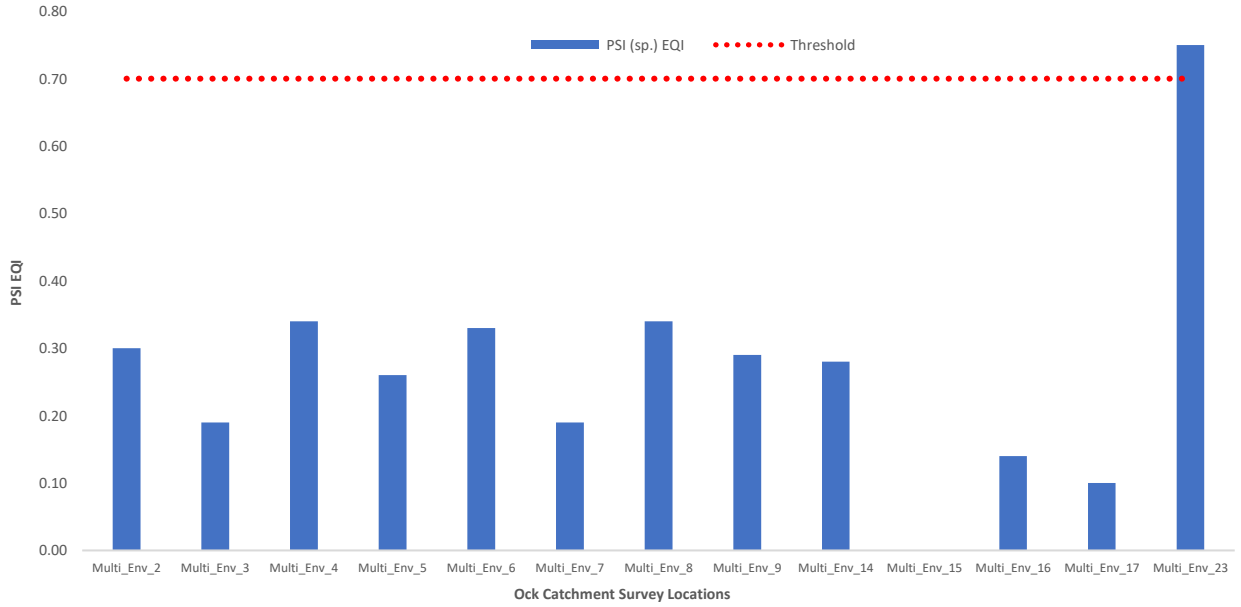

Plate 6 A graph showing PSI EQIs against its threshold for the 2024 Ock catchment survey locations.

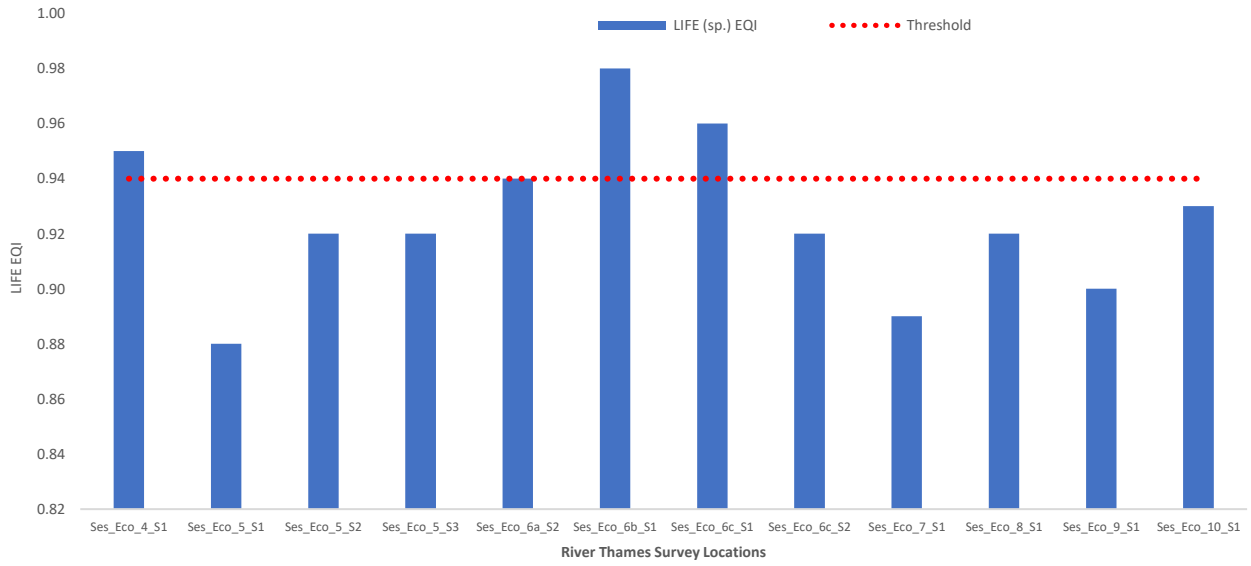

Plate 7 A graph showing LIFE EQIs against its threshold for the 2023/2024 River Thames survey locations.

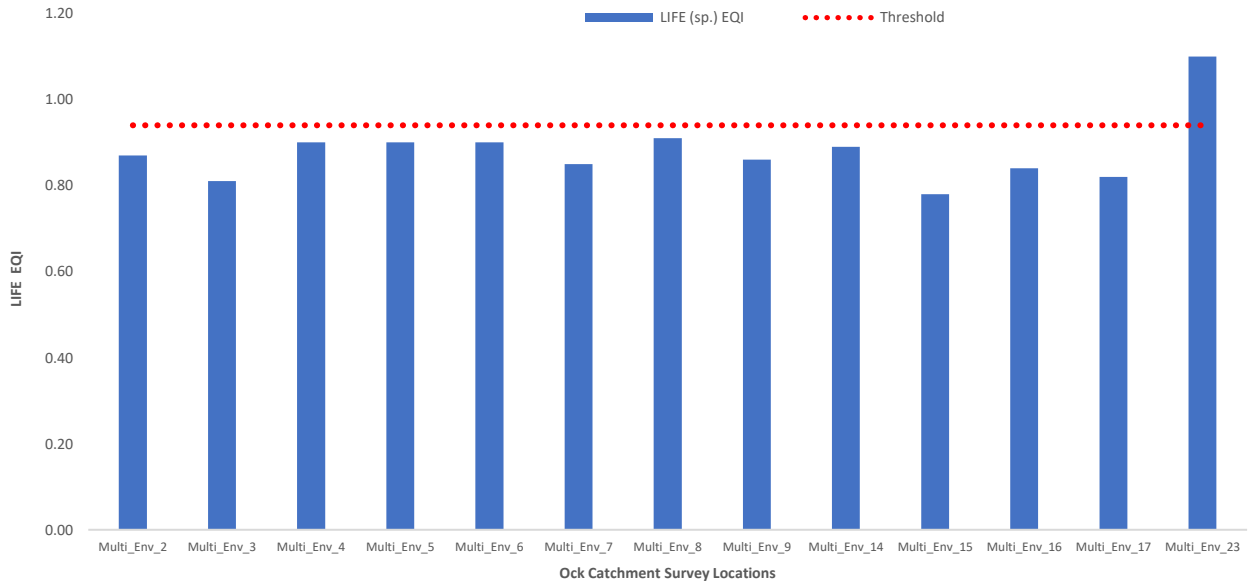

Plate 8 A graph showing LIFE EQIs against its threshold for the 2024 Ock catchment survey locations.

River Thames

Ses_Eco_4_S1

4.3.2 The average NTaxa EQR for Ses_Eco_4_S1 in 2023/2024 was 0.77, which is classified as "Good" WFD class, suggesting that the number of taxa recorded at this site is as expected for a watercourse of its type. The ASPT EQR was 0.82, which is consistent with "Moderate" WFD class, which indicates that the macroinvertebrate community consists of some species tolerant to pollution, suggesting that there are some impacts from pollution at this survey location.

4.3.3 The LIFE EQI score (0.95) indicates that the watercourse is not impacted by low flows, however this is based on a single year data only and should be used in caution. The PSI EQI score (0.41) indicates that the watercourse is impacted by fine sedimentation.

4.3.4 The CCI score was 19.81, which is indicative of a watercourse of high conservation value (Table 4.4).

Ses_Eco_5_S1

4.3.5 The average NTaxa EQR for Ses_Eco_5_S1 in 2023/2024 was 0.67, which is classified as "Moderate" WFD class, suggesting that the number of taxa recorded at this site is below what would be expected for a watercourse of its type. The ASPT EQR was 0.79, which is consistent with "Moderate" WFD class, which indicates that the macroinvertebrate community consists of some species tolerant to pollution, suggesting that there are some impacts from pollution at this survey location.

4.3.6 The PSI and LIFE EQI scores (0.24 and 0.88 respectively) indicate that there is an impact from fine sedimentation and low flows on macroinvertebrate communities within the watercourse. However this is based on a single year data only and should be used in caution.

4.3.7 The CCI score was 10.02, which is indicative of a watercourse of fairly high conservation value (Table 4.4).

Ses_Eco_5_S2

4.3.8 The average NTaxa EQR for Ses_Eco_5_S2 in 2023/2024 was 0.43, which is classified as "Bad" WFD class, suggesting that the number of taxa recorded at this site is below what would be expected for a watercourse of its type. The ASPT EQR was 0.81, which is consistent with "Moderate" WFD class, which indicates that the macroinvertebrate community consists of some species tolerant to pollution, suggesting that there are some impacts from pollution at this survey location.

4.3.9 The PSI and LIFE EQI scores (0.66 and 0.92 respectively), indicate that there is an impact from fine sedimentation and low flows on macroinvertebrate communities within the watercourse. However this is based on a single year data only and should be used in caution.

4.3.10 The CCI score was 11.1, which is indicative of a watercourse of fairly high conservation value (Table 4.4).

Ses_Eco_5_S3

4.3.11 The average NTaxa EQR for Ses_Eco_5_S3 in 2023/2024 was 0.57, which is classified as "Moderate" WFD class, suggesting that the number of taxa recorded at this site is below what would be expected for a watercourse of its type. The ASPT EQR was 0.82, which is consistent with "Moderate" WFD class, which indicates that the macroinvertebrate community consists of some species tolerant to pollution, suggesting that there are some impacts from pollution at this survey location.

4.3.12 The PSI and LIFE EQI scores (0.3 and 0.92 respectively) indicate that there is an impact from fine sedimentation and low flows on macroinvertebrate communities within the watercourse. However, this is based on a single year data only and should be used in caution.

4.3.13 The CCI score was 12.02, which is indicative of a watercourse of fairly high conservation value (Table 4.4).

Ses_Eco_6a_S2

4.3.14 The average NTaxa EQR for Ses_Eco_6a_S2 in 2023/2024 was 0.83, which is classified as "High" WFD class, suggesting that the number of taxa recorded at this site is as expected for a watercourse of its type. The ASPT EQR was 0.83, which is consistent with "Moderate" WFD class, which indicates that the macroinvertebrate community consists of some species tolerant to pollution, suggesting that there are some impacts from pollution at this survey location.

4.3.15 The LIFE EQI score (0.94) indicates that the watercourse is not impacted by low flows, however this is based on a single year data only and should be used in caution. The PSI EQI score (0.36), indicates that the watercourse is impacted by fine sedimentation.

4.3.16 The CCI score was 11.35, which is indicative of a watercourse of fairly high conservation value (Table 4.4).

Ses_Eco_6b_S1

4.3.17 The average NTaxa EQR for Ses_Eco_6b_S1 in 2023/2024 was 1.02, which is classified as "High" WFD class, suggesting that the number of taxa recorded at this site is as expected for a watercourse of its type. The ASPT EQR was 0.83, which is consistent with "Moderate" WFD class, which indicates that the macroinvertebrate community consists of some species tolerant to pollution, suggesting that there are some impacts from pollution at this survey location.

4.3.18 The PSI and LIFE EQI scores (0.34 and 0.92 respectively) indicate that there is an impact from fine sedimentation and low flows on macroinvertebrate communities within the watercourse. However, this is based on a single year data only and should be used in caution.

4.3.19 The CCI score was 18.26, which is indicative of a watercourse of high conservation value (Table 4.4).

Ses_Eco_6c_S1

4.3.20 The average NTaxa EQR for Ses_Eco_6c_S1 in 2023/2024 was 1.19, which is classified as "High" WFD class, suggesting that the number of taxa recorded at this site is as expected for a watercourse of its type. The ASPT EQR was 0.87, which is consistent with "Good" WFD class, which indicates that the macroinvertebrate community consists of some species tolerant to pollution, suggesting that there is no impact from pollution at this survey location.

4.3.21 The LIFE EQI score (0.96), indicates that there is no impact from low flows on the watercourse. However, this is based on a single year data only and should be used in caution. The PSI EQI score (0.54) indicates that the watercourse is impacted by fine sedimentation.

4.3.22 The CCI score was 18.48, which is indicative of a watercourse of high conservation value (Table 4.4).

Ses_Eco_6c_S2

4.3.23 The average NTaxa EQR for Ses_Eco_6c_S2 in 2023/2024 was 0.99, which is classified as "High" WFD class, suggesting that the number of taxa recorded at this site is as expected for a watercourse of its type. The ASPT EQR was 0.80, which is consistent with "Moderate" WFD class, which indicates that the macroinvertebrate community consists of some species tolerant to pollution, which indicates that the macroinvertebrate community consists of some species tolerant to pollution, suggesting that there are some impacts from pollution at this survey location.

4.3.24 The LIFE EQI score (0.96) indicates that there is no impact from low flows on the watercourse. However, this is based on a single year data only and should be used in caution. The PSI EQI score (0.54) indicates that the watercourse is impacted by fine sedimentation.

4.3.25 The CCI score was 11.86, which is indicative of a watercourse of fairly high conservation value (Table 4.4).

Ses_Eco_7_S1

4.3.26 The average NTaxa EQR for Ses_Eco_7_S1 in 2023/2024 was 0.83, which is classified as "High" WFD class, suggesting that the number of taxa recorded at this site is as expected for a watercourse of its type. The ASPT EQR was 0.79, which is consistent with "Moderate" WFD class, which indicates that the macroinvertebrate community consists of some species tolerant to pollution, suggesting that there are some impacts from pollution at this survey location.

4.3.27 The PSI and LIFE EQI scores (0.46 and 0.89 respectively), indicate that there is an impact from fine sedimentation and low flows on macroinvertebrate communities within the watercourse. However, this is based on a single year data only and should be used in caution.

4.3.28 The CCI score was 8.74, which is indicative of a watercourse of moderate conservation value (Table 4.4).

Ses_Eco_8_S1

4.3.29 The average NTaxa EQR for Ses_Eco_8_S1 in 2023/2024 was 0.81, which is classified as "High" WFD class, suggesting that the number of taxa recorded at this site is as expected for a watercourse of its type. The ASPT EQR was 0.83, which is consistent with "Moderate" WFD class, which indicates that the macroinvertebrate community consists of some species tolerant to pollution, suggesting that there are some impacts from pollution at this survey location.

4.3.30 The PSI and LIFE EQI scores (0.27 and 0.92 respectively) indicate that there is an impact from fine sedimentation and low flows on macroinvertebrate communities within the watercourse. However, this is based on a single year data only and should be used in caution.

4.3.31 The CCI score was 13.64, which is indicative of a watercourse of fairly high conservation value (Table 4.4).

Ses_Eco_9_S1

4.3.32 The average NTaxa EQR for Ses_Eco_9_S1 in 2023/2024 was 1.01, which is classified as "High" WFD class, suggesting that the number of taxa recorded at this site is as expected for a watercourse of its type. The ASPT EQR was 0.77, which is consistent with "Moderate" WFD class, which indicates that the macroinvertebrate community consists of some species tolerant to pollution, suggesting that there are some impacts from pollution at this survey location.

4.3.33 The PSI and LIFE EQI scores (0.29 and 0.90 respectively) indicate that there is an impact from fine sedimentation and low flows on macroinvertebrate communities within the watercourse. However, this is based on a single year data only and should be used in caution.

4.3.34 The CCI score was 13.10, which is indicative of a watercourse of fairly high conservation value (Table 4.4).

Ses_Eco_10_S1

4.3.35 The average NTaxa EQR for Ses_Eco_10_S1 in 2023/2024 was 0.76, which is classified as "Good" WFD class, suggesting that the number of taxa recorded at this site is as expected for a watercourse of its type. The ASPT EQR was 0.85, which is consistent with "Moderate" WFD class, which indicates that the macroinvertebrate community consists of some species tolerant to pollution, suggesting that there are some impacts from pollution at this survey location.

4.3.36 The PSI and LIFE EQI scores (0.36 and 0.93 respectively) indicate that there is an impact from fine sedimentation and low flows on macroinvertebrate communities within the watercourse. However, this is based on a single year data only and should be used in caution.

4.3.37 The CCI score was 13.09, which is indicative of a watercourse of fairly high conservation value (Table 4.4).

Ock catchment

Multi_Env_2

4.3.38 The average NTaxa EQR for Multi_Env_2 in 2024 was 0.57, which is classified as "Moderate" WFD class, suggesting that the number of taxa recorded at this site is below what would be expected for a watercourse of its type. The ASPT EQR was 0.69, which is consistent with "Poor" WFD class, suggesting that there are impacts from pollution at this survey location.

4.3.39 The PSI and LIFE EQI scores (0.30 and 0.87 respectively) indicate that there is an impact from fine sedimentation and low flows on macroinvertebrate communities within the watercourse. However, this is based on a single year data only and should be used in caution.

4.3.40 The CCI score was 2.17, which is indicative of a watercourse of low conservation value (Table 4.5).

Multi_Env_3

4.3.41 The average NTaxa EQR for Multi_Env_3 in 2024 was 0.44, which is classified as "Bad" WFD class, suggesting that the number of taxa recorded at this site is below what would be expected for a watercourse of its type. The ASPT EQR was 0.57, which is consistent with "Bad" WFD class, suggesting that there are impacts from pollution at this survey location.

4.3.42 The PSI and LIFE EQI scores (0.19 and 0.81 respectively) indicate that there is an impact from fine sedimentation and low flows on macroinvertebrate communities within the watercourse. However, this is based on a single year data only and should be used in caution.

4.3.43 The CCI score was 2.43, which is indicative of a watercourse of low conservation value (Table 4.5).

Multi_Env_4

4.3.44 The average NTaxa EQR for Multi_Env_4 in 2024 was 0.44, which is classified as "Bad" WFD class, suggesting that the number of taxa recorded at this site is below what would be expected for a watercourse of its type. The ASPT EQR was 0.57, which is consistent with "Bad" WFD class, suggesting that there are impacts from pollution at this survey location.

4.3.45 The PSI and LIFE EQI scores (0.34 and 0.90 respectively) indicate that there is an impact from fine sedimentation and low flows on macroinvertebrate communities within the watercourse. However, this is based on a single year data only and should be used in caution.

4.3.46 The CCI score was 2.50, which is indicative of a watercourse of low conservation value (Table 4.5).

Multi_Env_5

4.3.47 The average NTaxa EQR for Multi_Env_5 in 2024 was 0.44, which is classified as "Bad" WFD class, suggesting that the number of taxa recorded at this site is below what would be

expected for a watercourse of its type. The ASPT EQR was 0.58, which is consistent with "Bad" WFD class, suggesting that there are impacts from pollution at this survey location.

4.3.48 The PSI and LIFE EQI scores (0.26 and 0.90 respectively) indicate that there is an impact from fine sedimentation and low flows on macroinvertebrate communities within the watercourse. However, this is based on a single year data only and should be used in caution.

4.3.49 The CCI score was 1.92, which is indicative of a watercourse of low conservation value (Table 4.5).

Multi_Env_6

4.3.50 The average NTaxa EQR for Multi_Env_6 in 2024 was 0.36, which is classified as "Bad" WFD class, suggesting that the number of taxa recorded at this site is below what would be expected for a watercourse of its type. The ASPT EQR was 0.53, which is consistent with "Bad" WFD class, suggesting that there are impacts from pollution at this survey location.

4.3.51 The PSI and LIFE EQI scores (0.33 and 0.90 respectively) indicate that there is an impact from fine sedimentation and low flows on macroinvertebrate communities within the watercourse. However, this is based on a single year data only and should be used in caution.

4.3.52 The CCI score was 1.19, which is indicative of a watercourse of low conservation value (Table 4.5).

Multi_Env_7

4.3.53 The average NTaxa EQR for Multi_Env_7 in 2024 was 0.46, which is classified as "Bad" WFD class, suggesting that the number of taxa recorded at this site is below what would be expected for a watercourse of its type. The ASPT EQR was 0.53, which is consistent with "Bad" WFD class, suggesting that there are impacts from pollution at this survey location.

4.3.54 The PSI and LIFE EQI scores (0.19 and 0.85 respectively) indicate that there is an impact from fine sedimentation and low flows on macroinvertebrate communities within the watercourse. However, this is based on a single year data only and should be used in caution.

4.3.55 The CCI score was 2.67, which is indicative of a watercourse of low conservation value (Table 4.5).

Multi_Env_8

4.3.56 The average NTaxa EQR for Multi_Env_8 in 2024 was 0.47, which is classified as "Bad" WFD class, suggesting that the number of taxa recorded at this site is below what would be expected for a watercourse of its type. The ASPT EQR was 0.63, which is consistent with "Poor" WFD class, suggesting that there are impacts from pollution at this survey location.

4.3.57 The PSI and LIFE EQI scores (0.34 and 0.91 respectively) indicate that there is an impact from fine sedimentation and low flows on macroinvertebrate communities within the watercourse. However, this is based on a single year data only and should be used in caution.

4.3.58 The CCI score was 10.00, which is indicative of a watercourse of moderate conservation value (Table 4.5).

Multi_Env_9

4.3.59 The average NTaxa EQR for Multi_Env_9 in 2024 was 0.62, which is classified as "Moderate" WFD class, suggesting that the number of taxa recorded at this site is below what would be expected for a watercourse of its type. The ASPT EQR was 0.58, which is consistent with "Bad" WFD class, suggesting that there are impacts from pollution at this survey location.

4.3.60 The PSI and LIFE EQI scores (0.29 and 0.86 respectively) indicate that there is an impact from fine sedimentation and low flows on macroinvertebrate communities within the watercourse. However, this is based on a single year data only and should be used in caution.

4.3.61 The CCI score was 3,18, which is indicative of a watercourse of low conservation value (Table 4.5).

Multi_Env_14

4.3.62 The average NTaxa EQR for Multi_Env_14 in 2024 was 0.72, which is classified as "Good" WFD class, suggesting that the number of taxa recorded at this site is as expected for a watercourse of its type. The ASPT EQR was 0.62, which is consistent with "Poor" WFD class, suggesting that there are impacts from pollution at this survey location.

4.3.63 The PSI and LIFE EQI scores (0.28 and 0.89 respectively) indicate that there is an impact from fine sedimentation and low flows on macroinvertebrate communities within the watercourse. However, this is based on a single year data only and should be used in caution.

4.3.64 The CCI score was 2.73, which is indicative of a watercourse of low conservation value (Table 4.5).

Multi_Env_15

4.3.65 The average NTaxa EQR for Multi_Env_15 in 2024 was 0.35, which is classified as "Bad" WFD class, suggesting that the number of taxa recorded at this site is below what would be expected for a watercourse of its type. The ASPT EQR was 0.60, which is consistent with "Poor" WFD class, suggesting that there are impacts from pollution at this survey location.

4.3.66 The PSI and LIFE EQI scores (0 and 0.78 respectively) indicate that there is an impact from fine sedimentation and low flows on macroinvertebrate communities within the watercourse. However, this is based on a single year data only and should be used in caution.

4.3.67 The CCI score was 2.82, which is indicative of a watercourse of low conservation value (Table 4.5).

Multi_Env_16

4.3.68 The average NTaxa EQR for Multi_Env_16 in 2024 was 0.50, which is classified as "Poor" WFD class, suggesting that the number of taxa recorded at this site is below what would be

expected for a watercourse of its type. The ASPT EQR was 0.57, which is consistent with "Bad" WFD class, suggesting that there are impacts from pollution at this survey location.

4.3.69 The PSI and LIFE EQI scores (0.14 and 0.84 respectively) indicate that there is an impact from fine sedimentation and low flows on macroinvertebrate communities within the watercourse. However, this is based on a single year data only and should be used in caution.

4.3.70 The CCI score was 2.94, which is indicative of a watercourse of low conservation value (Table 4.5).

Multi_Env_17

4.3.71 The average NTaxa EQR for Multi_Env_17 in 2024 was 0.49, which is classified as "Poor" WFD class, suggesting that the number of taxa recorded at this site is below what would be expected for a watercourse of its type. The ASPT EQR was 0.52, which is consistent with "Bad" WFD class, suggesting that there are impacts from pollution at this survey location.

4.3.72 The PSI and LIFE EQI scores (0.10 and 0.82 respectively) indicate that there is an impact from fine sedimentation and low flows on macroinvertebrate communities within the watercourse. However, this is based on a single year data only and should be used in caution.

4.3.73 The CCI score was 6.04, which is indicative of a watercourse of moderate conservation value (Table 4.5).

Multi_Env_23

4.3.74 The average NTaxa EQR for Multi_Env_23 in 2024 was 0.57, which is classified as "Moderate" WFD class, suggesting that the number of taxa recorded at this site is below what would be expected for a watercourse of its type. The ASPT EQR was 0.90, which is consistent with "Good" WFD class, suggesting that there are no impacts from pollution at this survey location.

4.3.75 The PSI and LIFE EQI scores (0.75 and 1.10 respectively) indicate that there is an impact from fine sedimentation and low flows on macroinvertebrate communities within the watercourse. However, this is based on a single year data only and should be used in caution.

4.3.76 The CCI score was 3.20, which is indicative of a watercourse of low conservation value (Table 4.5).

Notable macroinvertebrate species

4.3.77 There were no notable macroinvertebrate species recorded in 2024 within the Ock catchment survey locations.

4.3.78 Fourteen notable macroinvertebrate species were recorded within the River Thames Survey Locations in 2024 and fifteen in 2023 (Table 4.6), ranging from a CCI score of 5 (Local) to a CCI score of 9 (RDB2 Vulnerable).

Table 4.6 A table showing the notable macroinvertebrate species recorded at the 2024 River Thames survey locations.

Common Name	Species	CCI Score	CCI Classification	Designations		Sites	Dates
Mud Snail	*Lymnaea glabra*	9	RDB2 (Vulnerable)	N/A	N/A	Ses_Eco_6C_S1	29/10/2024
Striped Mayfly	*Ephemera lineata*	8	RDB3 (Rare)	NS-includes*	N/A	Ses_Eco_4_S1	10/04/2024
						Ses_Eco_5_S3	27/04/2023
						Ses_Eco_4_S1	12/07/2023
						Ses_Eco_6b_S1	20/06/2023
						Ses_Eco_9_S1	14/07/2023
						Ses_Eco_10_S1	14/07/2023
Common Clubtail Dragonfly	*Gomphus vulgatissimus*	8	RDB3 (Rare)	N/A	N/A	Ses_Eco_4_S1	10/04/2024
						Ses_Eco_5_S2	13/05/2024
Caddifly (Leptoceridar)	*Oecetis notata*	8	RDB3 (Rare)	N/A	N/A	Ses_Eco_6B_S1	15/08/2024
Depressed River Mussel	*Pseudanodonta complanata*	7	Notable (but not RDB status)	S41 NERC[#]	NS-includes*	Ses_Eco_6A_S2	10/04/2024
						Ses_Eco_6C_S1	14/05/2024
						Ses_Eco_6C_S2	15/05/2024
						Ses_Eco_8_S1	15/05/2024
						Ses_Eco_6c_S1	21/06/2023
						Ses_Eco_8_S1	21/06/2023
Caddisfly (Leptoceridae)	*Ceraclea senilis*	7	Notable (but not RDB status)	Notable[¥]	N/A	Ses_Eco_9_S1	14/07/2023
Riffle Beetle	*Riolus subviolaceus*	6	Regionally Notable	NS-excludes[+]		Ses_Eco_6b_S1	20/06/2023
Caddisfly (Goeridae)	*Silo nigricornis*	5	Local	N/A	N/A	Ses_Eco_4_S1	10/04/2024
						Ses_Eco_5_S1	10/04/2024

Common Name	Species	CCI Score	CCI Classification	Designations		Sites	Dates
						Ses_Eco_4_S1	12/08/2024
						Ses_Eco_10_S1	13/08/2024
						Ses_Eco_6A_S2	30/10/2024
						Ses_Eco_6C_S1	29/10/2024
						Ses_Eco_9_S1	31/10/2024
						Ses_Eco_10_S1	28/10/2024
						Ses_Eco_4_S1	11/11/2024
						Ses_Eco_5_S3	11/11/2024
						Ses_Eco_7_S1	12/11/2024
True Bug	*Aphelocheirus aestivalis*	5	Local	N/A	N/A	Ses_Eco_6C_S1	14/05/2024
						Ses_Eco_6C_S1	29/10/2024
						Ses_Eco_10_S1	24/04/2023
						Ses_Eco_6c_S1	06/11/2023
						Ses_Eco_6c_S1	06/11/2023
Long Fingernail Clam	*Musculium transversum*	5	Local	N/A	N/A	Ses_Eco_6C_S1	15/05/2024
						Ses_Eco_8_S1	15/05/2024
						Ses_Eco_6A_S2	30/10/2024
						Ses_Eco_6C_S2	12/11/2024
						Ses_Eco_5_S1	11/11/2024
						Ses_Eco_4_S1	12/07/2023
						Ses_Eco_5_S2	11/07/2023
						Ses_Eco_6b_S1	01/11/2023

Common Name	Species	CCI Score	CCI Classification	Designations		Sites	Dates
						Ses_Eco_5_S2	11/07/2023
Caddisfly (Phrygaeniadae)	*Phryganea grandis*	5	Local	N/A	N/A	Ses_Eco_6B_S1	30/10/2024
						Ses_Eco_6b_S1	20/06/2023
Swollen River Mussel	*Unio tumidus*	5	Local	NS-includes*		Ses_Eco_5_S1	10/04/2024
						Ses_Eco_6C_S2	15/05/2024
						Ses_Eco_6C_S2	15/08/2024
						Ses_Eco_5_S1	11/11/2024
						Ses_Eco_6a_S2	20/06/2023
Caddisfly (Brachycentridae)	*Brachycentrus subnubilus*	5	Local	N/A	N/A	Ses_Eco_6B_S1	14/05/2024
						Ses_Eco_7_S1	15/05/2024
						Ses_Eco_8_S1	15/05/2024
						Ses_Eco_6B_S1	15/08/2024
						Ses_Eco_6C_S1	15/08/2024
						Ses_Eco_6C_S2	15/08/2024
						Ses_Eco_7_S1	15/08/2024
						Ses_Eco_8_S1	16/08/2024
						Ses_Eco_6B_S1	30/10/2024
						Ses_Eco_6C_S1	29/10/2024
						Ses_Eco_9_S1	31/10/2024
						Ses_Eco_10_S1	28/10/2024
						Ses_Eco_5_S3	11/11/2024
						Ses_Eco_6c_S1	21/06/2023

Common Name	Species	CCI Score	CCI Classification	Designations		Sites	Dates
						Ses_Eco_6c_S2	18/08/2023
						Ses_Eco_8_S1	21/06/2023
						Ses_Eco_10_S1	14/07/2023
						Ses_Eco_6a_S2	01/11/2023
						Ses_Eco_6b_S1	01/11/2023
						Ses_Eco_6c_S1	06/11/2023
						Ses_Eco_6c_S1	06/11/2023
Giant Lacewing	*Osmylus fulvicephalus*	5	Local	N/A	N/A	Ses_Eco_10_S1	13/08/2024
						Ses_Eco_10_S1	14/07/2023
Caddisfly (Psychomyiidae)	*Tinodes assimilis*	5	Local	N/A	N/A	Ses_Eco_7_S1	12/11/2024
Caddisfly (Goeridae)	*Silo nigricornis*	5	Local	N/A	N/A	Ses_Eco_6c_S1	26/04/2023
						Ses_Eco_4_S1	12/07/2023
						Ses_Eco_6a_S2	20/06/2023
						Ses_Eco_4_S1	31/10/2023
						Ses_Eco_5_S2	31/10/2023
						Ses_Eco_5_S3	31/10/2023
						Ses_Eco_6b_S1	01/11/2023
						Ses_Eco_6c_S1	06/11/2023
						Ses_Eco_6c_S1	06/11/2023
Caddisfly (Leptoceridae)	*Athripsodes bilineatus*	5	Local	N/A	N/A	Ses_Eco_8_S1	21/06/2023
Beautiful Demoiselle Damselfly	*Calopteryx virgo*	5	Local	N/A	N/A	Ses_Eco_5_S1	31/10/2023

Common Name	Species	CCI Score	CCI Classification	Designations		Sites	Dates
Humpbacked Peaclam	*Pisidium supinum*	5	Local	N/A	N/A	Ses_Eco_6c_S2	29/09/2023
Delta prawn	*Palaemon longirostris*	5	Local	N/A	N/A	Ses_Eco_5_S3	11/07/2023
River orb mussel	*Sphaerium rivicola*	N/A (3)	(Frequent)	NS-includes*	N/A	Ses_Eco_6C_S2	12/11/2024
						Ses_Eco_9_S1	31/10/2024

*NS-includes: species that are nationally scarce. Includes Red Listed Data.
[#] S41 NERC: species of principal importance protected under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006[2].
[¥] Notable: species that are nationally notable.
[+] NS-excludes: species that are nationally scarce. Excludes Red Listed Data.

[2] Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. Available from: https://www.legislation.gov.uk/ukpga/2006/16/section/41. Accessed on 8th June 2025.

4.4 Depressed river mussel

4.4.1 Seven taxa were found during the river mussel surveys within the River Thames in 2024, the most abundant of which being the INNS, the Asian clam, which was recorded at every survey location (Table 4.7).

4.4.2 One shell of the depressed river mussel *Pseudanodonta complanata* was recorded at one survey location SES_ECO_4_S1.

4.4.3 Another INNS, the zebra mussel *Dreissena polymorpha,* was recorded at all sites, apart from SES_ECO_5_S3.

4.4.4 Other species recorded included the duck mussel *Anodonta anatine*, pea mussel *Sphaerium* sp., painter's mussel *Unio pictorum* and swollen river mussel *Unio tumidus.*

Table 4.7 Mussel species recorded on the River Thames in 2024

Site	Date	Species	Live Total	Shell Total	Overall total
SES_ECO_4_S1	21/08/2024	*Anodonta anatina*	2	27	29
		Corbicula fluminea	300	55	355
		Dreissena polymorpha	0	1	1
		Pseudanodonta complanata	0	1	1
		Sphaerium sp.	2	6	8
		Unio pictorum	4	0	4
		Unio tumidus	53	29	82
SES_ECO_5_S1	21/08/2024	*Anodonta anatina*	0	3	3
		Corbicula fluminea	260	125	385
		Dreissena polymorpha	6	14	20
		Sphaerium sp.	3	7	10
		Unio pictorum	9	19	28
		Unio tumidus	58	118	176
SES_ECO_5_S2	21/08/2024	*Anodonta anatina*	0	43	43
		Corbicula fluminea	119	40	159
		Dreissena polymorpha	13	15	28
		Sphaerium sp.	2	7	9
		Unio pictorum	12	3	15
		Unio tumidus	24	74	98
SES_ECO_5_S3	22/08/2024	*Anodonta anatina*	0	2	2
		Corbicula fluminea	23	9	32
		Sphaerium sp.	1	5	6
		Unio pictorum	7	0	7

Site	Date	Species	Live Total	Shell Total	Overall total
		Unio tumidus	36	7	43
SES_ECO_5_S4	22/08/2024	*Anodonta anatina*	2	0	2
		Corbicula fluminea	60	25	85
		Dreissena polymorpha	1	0	1
		Sphaerium sp.	2	2	4
		Unio pictorum	4	1	5
		Unio tumidus	45	10	55

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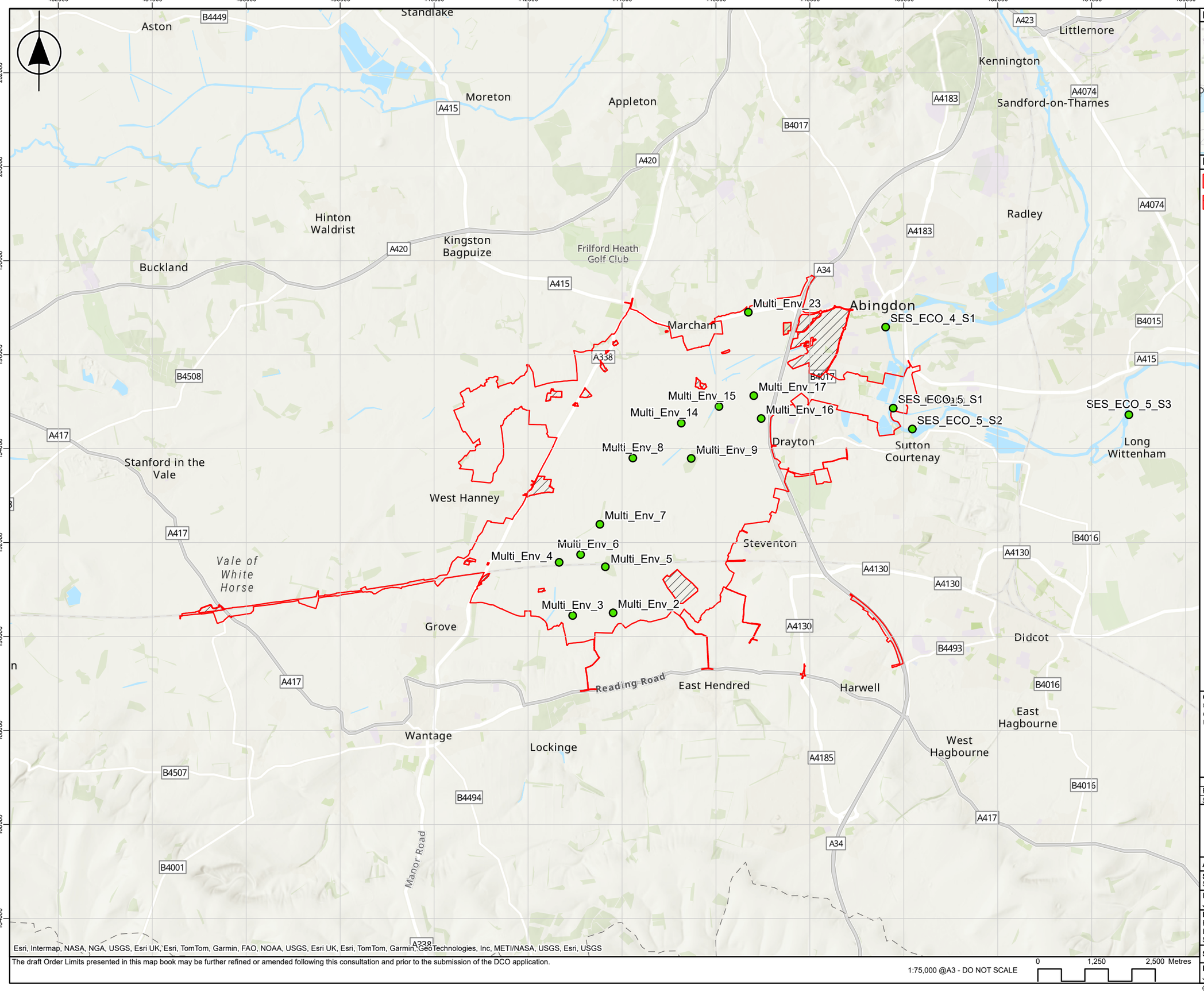
Annex 1 Map of INNS survey locations



OS / Grid Reference: SU49

Revision	Authored	Checked	Reviewed	Approved	Date
C01	MA	CE	JME	VL	07/10/25

Status: A AUTHORISED AND ACCEPTED FOR CONSULTATION

APFP References: N/A

Security Reference: Public

Site Name:
South East Strategic Reservoir Option

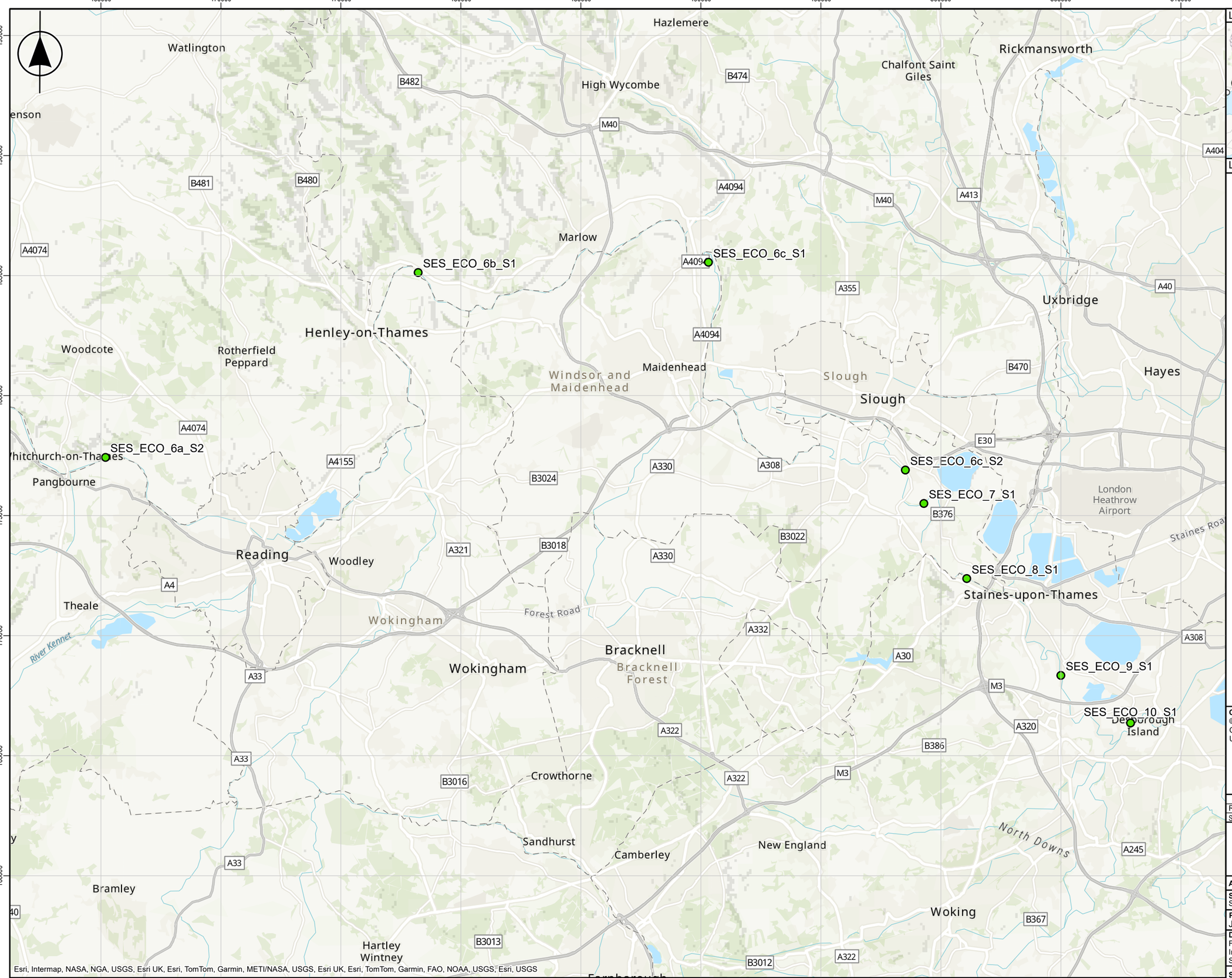
Project Name:
J696 South East Strategic Reservoir Option (SESRO)

Drawing Title:
Figure 1:
Invasive non-native species survey locations
Sheet 1 of 2

Scale: 1:75,000 **Sheet Size:** A3 **Status:** A

Drawing Number:
J696-ARB-XXXX-XXXX-MP-EN-000138

Rev: C01



The draft Order Limits presented in this map book may be further refined or amended following this consultation and prior to the submission of the DCO application.

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Location Plan Scale 1:5,000,000

Legend

- Invasive Non-Native Species Survey Locations

OS / Grid Reference: SU49

C01	MA	CE	JME	VL	07/10/25
Revision	Authored	Checked	Reviewed	Approved	Date

Status: A AUTHORISED AND ACCEPTED FOR CONSULTATION

APFP References: N/A

Security Reference: Public

Site Name:
South East Strategic Reservoir Option

Project Name:
J696 South East Strategic Reservoir Option (SESRO)

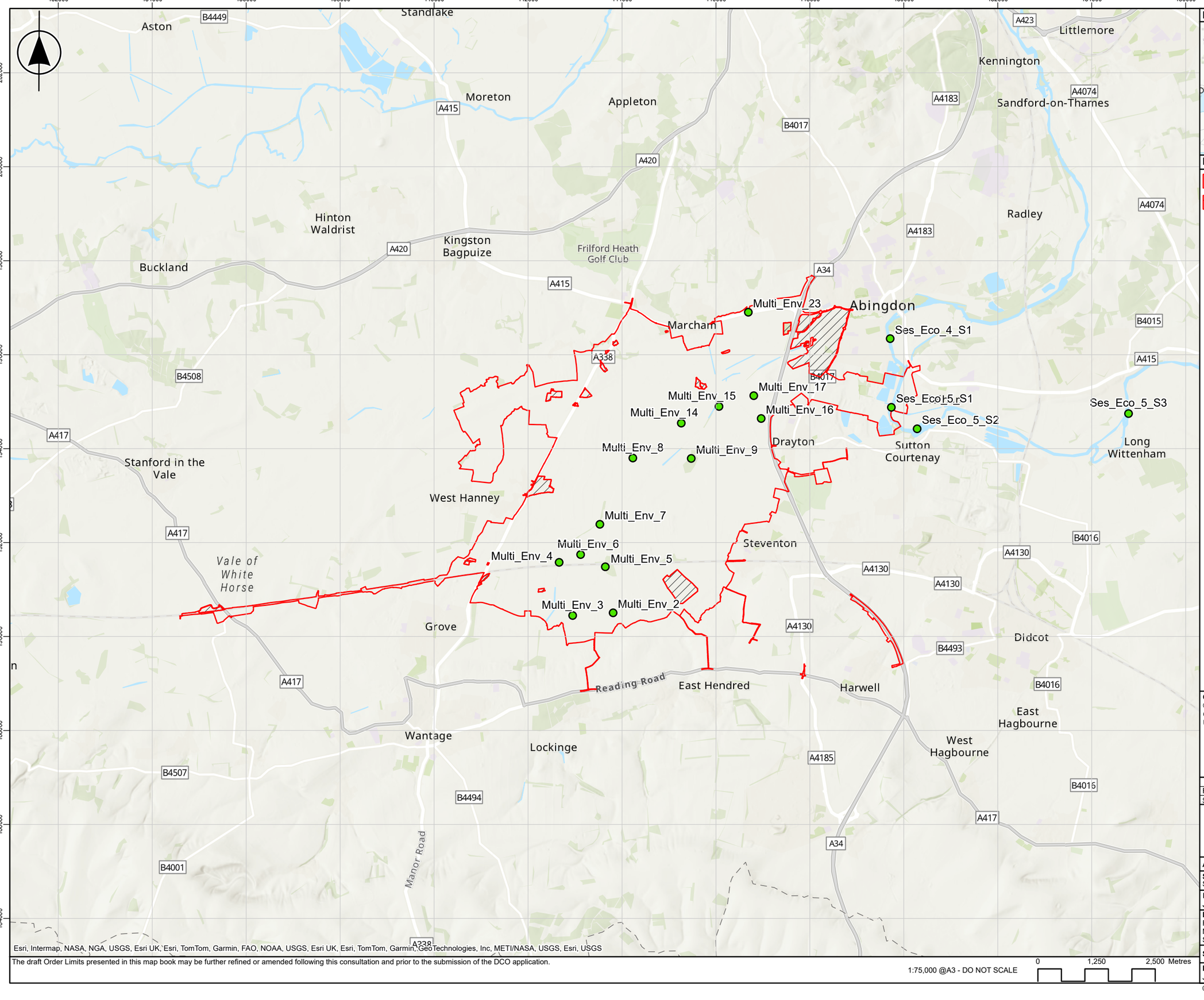
Drawing Title:
Figure 1:
Invasive non-native species survey locations
Sheet 2 of 2

Scale: 1:150,000 **Sheet Size:** A3 **Status:** A

Drawing Number:
J696-ARB-XXXX-XXXX-MP-EN-000138

Rev: C01

Annex 2 Map of macroinvertebrate survey locations



The draft Order Limits presented in this map book may be further refined or amended following this consultation and prior to the submission of the DCO application.

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C01	MA	CE	JME	VL	07/10/25
Revision	Authored	Checked	Reviewed	Approved	Date

Status: A AUTHORISED AND ACCEPTED FOR CONSULTATION

APFP References: N/A

Security Reference: Public

Site Name:
South East Strategic Reservoir Option

Project Name:
J696 South East Strategic Reservoir Option (SESRO)

Drawing Title:
Figure 2:
Macroinvertebrates survey locations
Sheet 1 of 2

Scale: 1:75,000 **Sheet Size:** A3 **Status:** A

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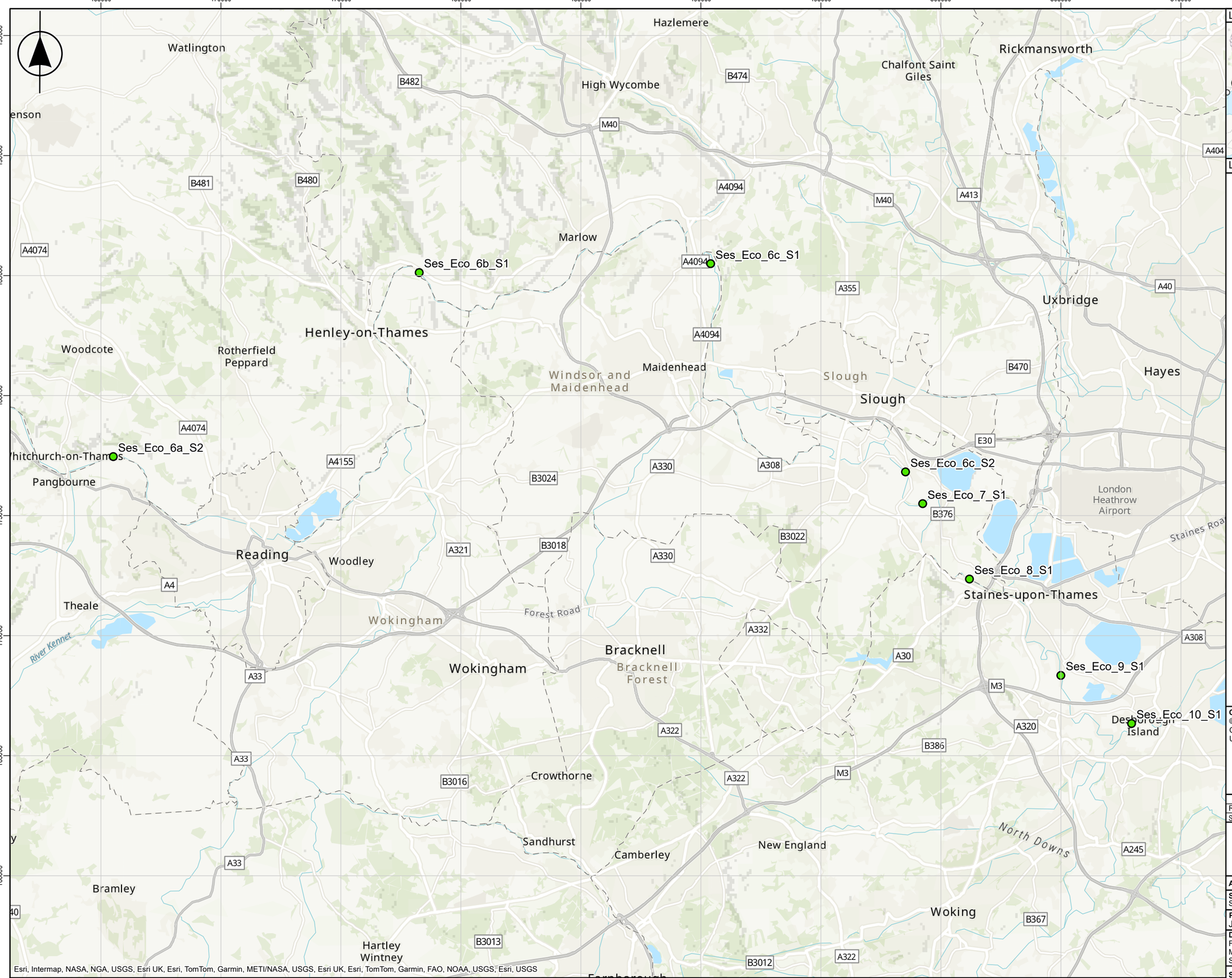
J696-ARB-XXXX-XXXX-MP-EN-000139

Rev: C01



The draft Order Limits presented in this map book may be further refined or amended following this consultation and prior to the submission of the DCO application.

1:150,000 @A3 - DO NOT SCALE

Location Plan Scale 1:5,000,000

Legend

- Macroinvertebrate Survey Locations

OS / Grid Reference: SU49

C01	MA	CE	JME	VL	07/10/25
Revision	Authored	Checked	Reviewed	Approved	Date

Status: A AUTHORISED AND ACCEPTED FOR CONSULTATION

APFP References: N/A

Security Reference: Public

Site Name:
South East Strategic Reservoir Option

Project Name:
J696 South East Strategic Reservoir Option (SESRO)

Drawing Title:
Figure 2:
Macroinvertebrates survey locations
Sheet 2 of 2

Scale: 1:150,000 **Sheet Size:** A3 **Status:** A

Drawing Number:
J696-ARB-XXXX-XXXX-MP-EN-000139

Rev: C01

Annex 3 Map of depressed river mussel survey locations

448000 449000 450000 451000 452000 453000 454000 455000

198000 197000 196000 195000 194000 193000

Shippon
Barrow Road
B4017
A4183
Abingdon School
Park Road
Abingdon
White Horse Leisure and Tennis Centre
Abbey Gardens
A415
River Ock
Mill Road
A34
Saxton Road
SES_ECO_4_S1
SES_ECO_4_S1_ss3
SES_ECO_4_S1_ss2
SES_ECO_4_S1_ss1
Swift Ditch
River Thames
Thame Lane
B4015
Clifton Hampden
Europa School UK
High Street
SES_ECO_5_S1_ss2
Culham
SES_ECO_5_S1
SES_ECO_5_S1_ss1
SES_ECO_5_S3_ss1
SES_ECO_5_S3_ss2
SES_ECO_5_S4_ss3
SES_ECO_5_S3
SES_ECO_5_S2_ss3
SES_ECO_5_S2_ss2
SES_ECO_5_S2
SES_ECO_5_S2_ss1
B4016
The Green
Drayton
Sutton Courtenay
Long Wittenham
Drayton East Way
Stevenson Road
Ginge Brook
High Street
Drayton Park Golf Club
Appleford
Moor Ditch
Main Road
Didcot Road
Hobbyhorse Lane
Mill Lane
Milton
Sires Hill

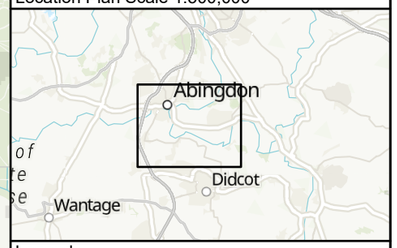
Esri, Intermap, NASA, NGA, USGS, Esri, Ordnance Survey, NASA, NGA, USGS, Esri UK, Esri, TomTom, Garmin, FAO, METI/NASA, USGS, Esri UK, Esri, TomTom, Garmin, GeoTechnologies, Inc, METI/NASA, USGS

The draft Order Limits presented in this map book may be further refined or amended following this consultation and prior to the submission of the DCO application.

1:25,000 @A3 - DO NOT SCALE

0 465 930 Metres

Location Plan Scale 1:500,000



Legend

- draft Order limits
- Areas omitted from draft Order limits
- Depressed River Mussel Survey Locations

OS / Grid Reference: SU49

Revision	Authored	Checked	Reviewed	Approved	Date
C01	MA	CE	JME	VL	07/10/25

Status: A AUTHORISED AND ACCEPTED FOR CONSULTATION

APFP References: N/A
Security Reference: Public

Site Name:
South East Strategic Reservoir Option

Project Name:
J696 South East Strategic Reservoir Option (SESRO)

Drawing Title:
Figure 3:
Depressed river mussel survey locations

Scale: 1:25,000 **Sheet Size:** A3 **Status:** A

Drawing Number:
J696-ARB-XXXX-XXXX-MP-EN-000140

Rev: C01

It's everyone's water