

Upper Thames Reservoir



EIA Scoping Report



October 2008

Upper Thames Reservoir

**Prepared by Cascade Consulting
and Land Use Consultants**

Working in partnership





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17 November 2008
CC125/L845

Dear Mr Buckle

Thames Water Upper Thames Reservoir - EIA Scoping Opinion Request

Cascade Consulting has been commissioned by Thames Water to provide environmental consultancy services in respect of water resource planning and development and is acting on behalf of the company with respect to the Upper Thames Reservoir proposal.

As stated in the company's draft Water Resources Management Plan (dWRMP) for 2010-2035, Thames Water intends to pursue proposals for a 150Mm³ reservoir sited to the south west of Abingdon in Oxfordshire. As a Schedule 1 development under The Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999, the proposed reservoir will be subject to EIA.

This letter and the enclosed Scoping Report constitute a formal request on behalf of Thames Water for a Scoping Opinion under Regulation 10 of the EIA Regulations.

The proposals for the reservoir are set out in Thames Water's dWRMP, which has been subject to a consultation process and requires the approval of the Secretary of State. Thames Water's decision to produce this EIA Scoping Report and to request a Scoping Opinion is not intended to influence or interfere with the statutory process whereby the Secretary State considers its dWRMP.

Should the reservoir be included in the final WRMP approved by the Secretary of State, it will be necessary to submit an application in 2010 either for a Development Consent Order under the provisions of the Planning Bill or, if the Planning Bill is not enacted and in force, a Compulsory Works Order under the provisions of Section 167 of the Water Industry Act. This is in order to ensure that the reservoir is constructed and operational by 2021/22 in accordance with the requirements of the dWRMP. A Scoping Opinion is fundamental to this stage of the EIA process and thus time critical if Thames Water is to submit a consent application for the reservoir in 2010.

In the light of discussions with Defra, CLG and yourselves, this request is submitted to the Vale of White Horse District Council as the local planning authority. A copy has also been sent to Defra and CLG for their information. We understand that any opinion provided by the Vale would be considered by the Infrastructure Planning Commission or the Secretary of State as part of any subsequent application for development consent.

Under Regulation 10 (4) of the EIA Regulations, you have five weeks to provide an opinion. However, in view of the scale and complexity of the scheme, Thames Water has agreed to extend this period to ten weeks.

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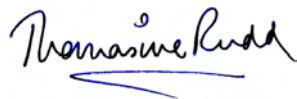
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We trust that the enclosed Scoping Report provides sufficient information on the scheme and the scope of the EIA but should you have any queries, please contact me on the contact numbers above or Clive Loveridge of Thames Water on 0118 373 8824.

Yours sincerely
for Cascade Consulting

A handwritten signature in blue ink that reads "Thomasine Rudd". The signature is fluid and cursive, with a long horizontal stroke at the bottom.

Dr T Rudd
Director

Enc

cc Clive Loveridge, Thames Water
Mike Gilbert, VoWHDC
Mike Walker, Defra
Donald Stark, CLG

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List of Abbreviations

AADF	Average Annual Daily Flow
AHLV	Area of High Landscape Value
AL	Advisory Leaflet
ALC	Agricultural Land Classification
AOD	Above Ordnance Datum
AONB	Area of Outstanding Natural Beauty
AQMA	Air Quality Management Area
ATCs	Automated Traffic Counts
BAP	Biodiversity Action Plan
BBS	Breeding Bird Survey
BGS	British Geological Survey
BOD	Biochemical Oxygen Demand
BS	British Standard
CAMS	Catchment Abstraction Management Strategy
CAO	County Archaeological Officer
CAR	Conservation, Access and Recreation
CFD	Computational Fluid Dynamics
CHP	Combined Heat and Power
CLEA	Contaminated Land Exposure Assessment
CLG	Communities and Local Government
CO	Carbon Monoxide
CWO	Compulsory Works Order
CWS	County Wildlife Site
CZTV	Cumulative Zone of Theoretical Visibility
dB(A)	Decibel (A-weighted)
DCO	Development Consent Order
Defra	Department of Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges
DTM	Digital Terrain Model
DWRMP	Draft Water Resources Management Plan
EcIA	Ecological Impact Assessment
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
ES	Environmental Statement
EWD	East Watercourse Diversion
FDM	Fugitive Dust Model
FRA	Flood Risk Assessment
FRCA	Farming and Rural Conservation Agency
GATOX	Gatehampton to Oxford Water Pipeline
GCM	Global Climate Model
GIS	Geographical Information System
GQA	General Quality Assessment
ha	hectare
HA	Highways Agency
HAFPI	Highways Agency Fog Potential Index
HGV	Heavy Goods Vehicle
HIA	Health Impact Assessment
HSE	Health and Safety Executive
Hz	Hertz
IPC	Infrastructure Planning Commission
km	kilometre
km ²	square kilometre
LiDAR	Light Detecting and Ranging Method
LTOA	Lower Thames Operating Agreement
m	metre
µm	micrometer
m ³ /d	cubic metre per day
m ³ /s	cubic metre per second

MAFF	Ministry of Agriculture, Fisheries and Food
MFC	Minimum Flow Constraint
ML/d	Megalitres (million litres) per day
Mm ³	Million cubic metres
MTR	Mean Trophic Rank
MOD	Ministry of Defence
NO ₂	Nitrogen Dioxide
NSCA	National Society for Clean Air
O ₃	Ozone
OA	Oxford Archaeology
OCC	Oxfordshire County Council
ODPM	Office of the Deputy Prime Minister
ONS	Office of National Statistics
OPCT	Oxfordshire Primary Care Trust
OWLS	Oxfordshire Wildlife and Landscape Study
PM ₁₀	Particulate matter less than 10µm (micrometres) in diameter
PPG	Planning Policy Guidance
PPS	Planning Policy Statement
Q ₁₀	River flow exceeded for 10% of the time
QRA	Quantitative Risk Assessment
RAF	Royal Air Force
RAMS	Regional Atmospheric Modelling System
RCHME	Royal Commission on the Historical Monuments of England
RDS	Rural Development Service
RPG	Regional Planning Guidance
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SAM	Scheduled Ancient Monument
SMR	Sites and Monuments Record
SNH	Scottish Natural Heritage
SOA	Super Output Areas
SODC	South Oxfordshire District Council
SSSI	Site of Special Scientific Interest
STW	Sewage Treatment Works
SVF	Sky View Factor
SWOPCT	South West Oxfordshire Primary Care Trust
SWOX	Swindon and Oxfordshire
TA	Transport Assessment
TDI	Trophic Diatom Index
TEOM – FDMS	Tapered Element Oscillating Microbalance – Filter Dynamics Measurement System
TVERC	Thames Valley Environmental Records Centre
UK	United Kingdom
UTMRD	Upper Thames Major Resource Development
UTR	Upper Thames Reservoir
VEM	Visual Envelope Map
VoWHDC	Vale of White Horse District Council
WFD	Water Framework Directive
WRSE	Water Resources in the South East
WTW	Water Treatment Works
WWD	West Watercourse Diversion
ZTV	Zone of Theoretical Visibility
ZVI	Zone of Visual Influence

NON TECHNICAL SUMMARY

Introduction

This Scoping Report has been produced by Cascade Consulting and Land Use Consultants on behalf of Thames Water. It sets out how Thames Water and its consultants will identify, describe and assess the effects that the proposed Upper Thames Reservoir (UTR) scheme, if it were to receive the necessary approvals, would be likely to have on the environment and outlines how these effects could be avoided, reduced or remedied.

Planning Consent for a Reservoir

Subject to Government approval of Thames Water's draft Water Resources Management Plan for 2010-2035 (which is described in more detail below), the company is intending to put in an application for planning consent for a reservoir south west of Abingdon in Oxfordshire. At this time a new bill, The Planning Bill, is being progressed through Parliament. This Bill has implications for the way in which consent for the reservoir scheme would be applied for. Until such time as the Bill becomes law and new procedures are brought in, the planning consent route is being kept under review. In the meantime, Thames Water has agreed with Government that any consent application matters should be dealt with in the first instance by the local planning authority, the Vale of White Horse District Council (VoWHDC).

Environmental Impact Assessment

Whatever development consent route is followed, an Environmental Impact Assessment (EIA) of the reservoir will be carried out. This is because the size and nature of the reservoir, for storing 150 million cubic metres of water, mean that it is classified as a Schedule 1 development in the Government's regulations that cover EIA.

The EIA will set out all the possible effects, both harmful and beneficial, that the reservoir scheme could have on the environment (this is described in more detail below). Once all the effects have been assessed, ways to reduce or minimise those that are viewed as significant would be considered and put forward. The results of this work would be provided in an Environmental Statement (ES) that would be submitted with the application for development consent.

EIA Scoping

Scoping is the process of agreeing the content and coverage of the EIA and how the various topics it covers are to be assessed. Thames Water and its consultants have set this information out in this EIA Scoping Report, which has been sent to the VoWHDC with a request for a Scoping Opinion, in accordance with the Government's EIA regulations. This report provides the VoWHDC and other relevant consultees with information on the scope of

the EIA proposed for the reservoir so that they can raise any concerns or suggestions about the scheme or the scope of the assessment work. Responses from consultees will be taken into account in planning and carrying out the EIA and will also feed into the ongoing scheme design.

The Need for the Reservoir Scheme

In September 2006, Thames Water launched a public consultation on its Upper Thames Major Resource Development Study (Thames Water, UTMRD Stage 1 Needs and Alternatives Report, 2006), which set out how it would supply customers with water over the 25-year period 2010-2035. In addition to measures that would continue to reduce leakage (by mending leaks and replacing water mains, particularly in London) and improve the careful use of water (for instance by metering more customers' supplies), Thames Water concluded that a new reservoir would also be needed to safeguard future customer supplies.

Since that time, changes to the law on water resources planning mean that Thames Water has a statutory requirement to consult with the public on how it plans to ensure that there will be sufficient water available to meet customers' needs, whilst protecting the environment, over the period 2010-2035. This information is set out in a Water Resources Management Plan.

In May 2008, Thames Water launched a public consultation on its draft Water Resources Management Plan. The Plan includes a new reservoir as well as other measures such as leakage reduction and metering. This consultation period ended in August 2008. A Statement of Response to all comments made on the draft Water Resources Management Plan is being prepared and will be submitted to the Government. It will then be for the Government to decide whether to hold a public hearing or inquiry, or to issue any direction on the content of the final Water Resources Management Plan. In the interim, due to the scale and complexity of the work required to support an EIA of the proposed reservoir, and to meet the timeline for its operation by 2021/22 proposed in the draft Water Resources Management Plan, work on the EIA of the scheme is being progressed.

The Purpose of the Reservoir Scheme

The reservoir would take water from the River Thames in winter, when there is typically plenty of water available, and store it for use in summer when customers in London and the Thames Valley need it the most. By doing this, the reservoir would help to "even out" the amount of water available over the year and avoid possible water shortages during the increasingly drier summers that are predicted as a result of climate change.

A proportion of the water from the reservoir would be treated and pumped through a pipeline to customers in the Swindon and Oxfordshire areas. To supply customers in London, stored water would be released from the reservoir in summer, and allowed to flow using the river's current down the Thames to west London, where it would be taken out

again to fill the Thames Valley reservoirs.

Description of the Reservoir Scheme

Subject to the outcome of the final Water Resources Management Plan 2010-2035, the scheme would involve the construction of a new reservoir south west of Abingdon in Oxfordshire (shown on **Figure 1**). The proposed components of this scheme would be:

- A fully bunded reservoir with embankments made from clay excavated from the site.
- A water transfer system (shown on **Figure 1**) comprising:
 - A combined intake and outfall structure on the River Thames to take and release water, depending on the time of year.
 - A water transfer tunnel and shafts to carry river water into the reservoir and let it out again.
 - A pumping station to provide power to move the water.
 - Inlet and outlet towers in the reservoir for letting water into and out of the reservoir.
- A direct water supply system for the Swindon and Oxfordshire (SWOX) area (shown on **Figure 2**) comprising:
 - A water treatment works to treat the stored water from the reservoir.
 - A pipeline to connect the water into the SWOX supply system.
- An auxiliary drawdown system, which is a siphon and open channel to the River Thames that could be used to let water out of the reservoir quickly in the event of an emergency.
- Access works (as shown on **Figure 3**) comprising:
 - The diversion of the Hanney–Steventon Road.
 - A site access road from Marcham Road (A415) to the north east corner of the site and two minor accesses from the diverted Hanney-Steventon Road and A338.
 - New rail sidings off the London–Bristol main line to the east of Steventon for the delivery of construction materials.
- Diversion of watercourses and creation of flood storage compensation areas to reduce flood risk downstream.
- Environmental enhancement works comprising:
 - Identification of a realigned route for the former Wilts & Berks Canal around the perimeter of the reservoir, and the protection of that route.
 - Landscaping, planting and ecological enhancements to integrate the reservoir into the local landscape (as shown on **Figure 4**).

- Internal access roads, cycleways, bridleways and footpaths.
- Proposed recreational facilities (as shown on **Figure 5**).

Work is continuing on the scheme design and some elements are still being considered. These include:

- Renewable energy infrastructure, which could comprise a wind turbine (a possible location for which is shown on **Figure 1**) or a biomass combined heat and power plant (which could be located close to the new water treatment works).
- Using the reservoir in conjunction with Farmoor Reservoir. This would reduce the amount of water currently taken out of the River Thames at Farmoor (upstream) and increase the amount taken out at the reservoir intake (downstream). More water would then flow through Oxford in summer. This would help to alleviate periodic low flows which could affect water quality and ecology in the stretch of the River Thames and the network of small streams that run through the city.

Although consultation and decisions have yet to be made on these elements of the scheme, they have been included within the EIA at this stage and are addressed within this Scoping Report where appropriate.

Structure of the Scoping Report

This Scoping Report is divided into five parts as follows:

Part A – Scheme and Context

Part B – Effects on Water and Ecology

Part C – Effects on Land and Resources

Part D – Effects on Human Activities

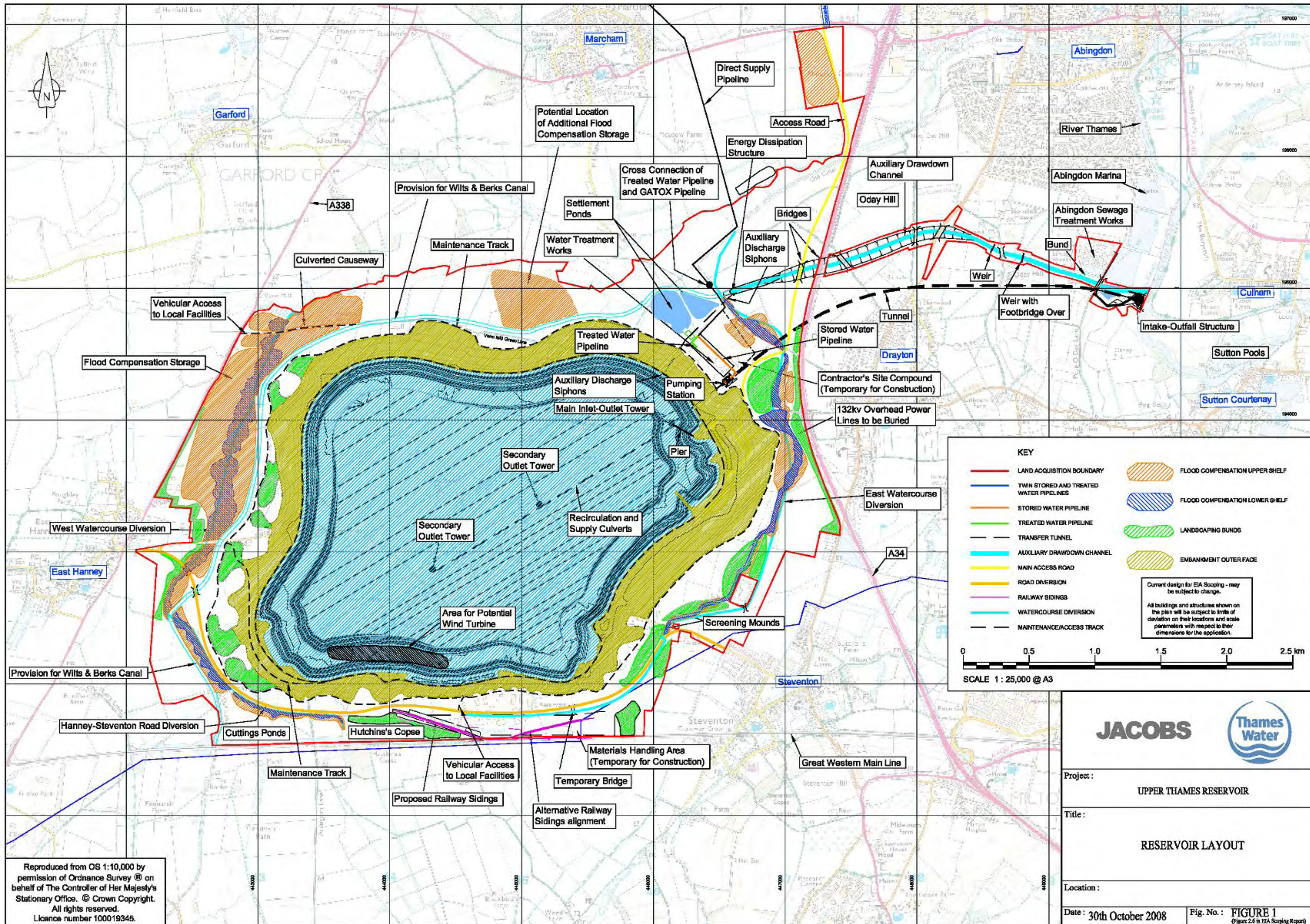
Part E – Supporting Documents for the Environmental Statement.

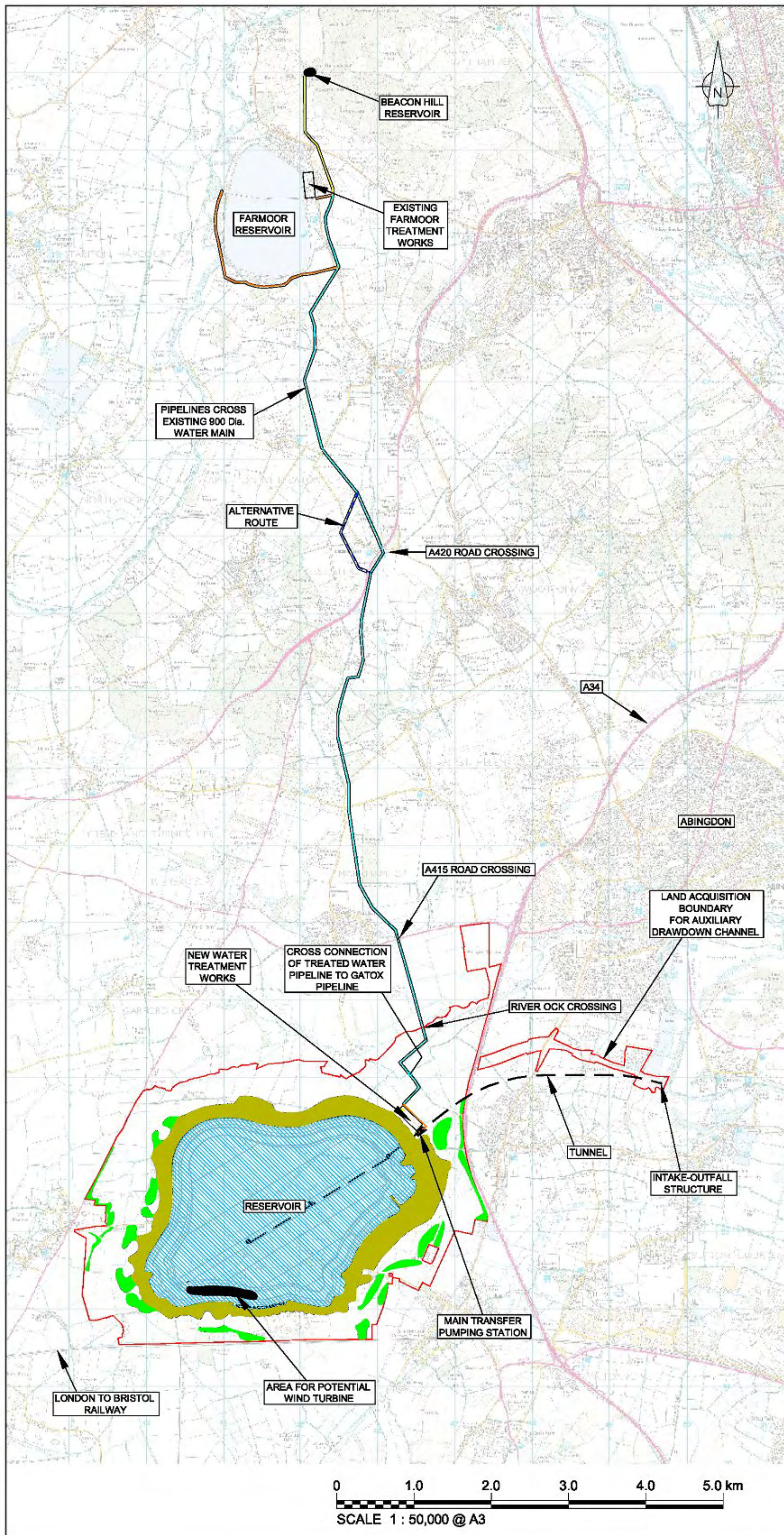
The technical areas of study that comprise each part of this report, and their inter-relation, are shown on **Figure 6**.

Part A includes an introduction to the scheme, a detailed scheme description, the scope of the application for consent, and relevant key planning policies. Parts B-E are discussed in more detail below.

Effects on Water and Ecology

The likely impacts of the reservoir on existing rivers (River Thames and River Ock), and other watercourses (largely the tributaries of the River Ock) and the wildlife they contain





LEGEND

- TWIN STORED AND TREATED WATER PIPELINES WITHIN APPROX. BOUNDARY OF CONSTRUCTION DISTURBANCE TO PIPELINE.
- TWIN STORED AND TREATED WATER PIPELINES ALTERNATIVE ROUTE AT BESSELSLEIGH WITHIN APPROX. BOUNDARY OF CONSTRUCTION DISTURBANCE TO PIPELINE.
- STORED WATER PIPELINE WITHIN APPROX. BOUNDARY OF CONSTRUCTION DISTURBANCE TO PIPELINE.
- TREATED WATER PIPELINE WITHIN APPROX. BOUNDARY OF CONSTRUCTION DISTURBANCE TO PIPELINE.
- LAND ACQUISITION BOUNDARY
- LANDSCAPING BUNDS
- EMBANKMENT OUTER FACE

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Current design for EIA Scoping - may be subject to change.

All buildings and structures shown on the plan will be subject to limits of deviation on their locations and scale parameters with respect to their dimensions for the application.

JACOBS



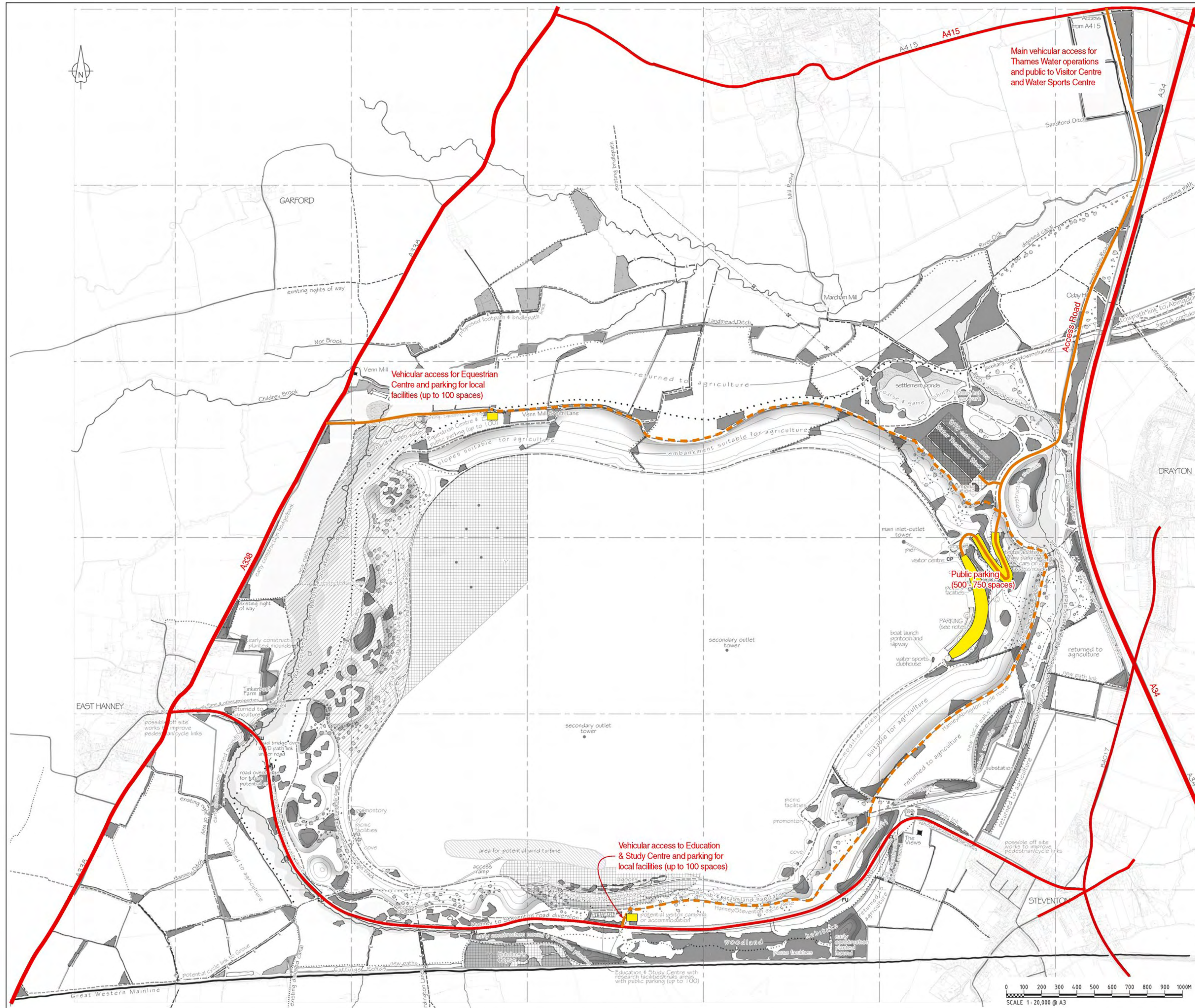
Project :
UPPER THAMES RESERVOIR

Title :
PIPELINES FOR DISTRIBUTION OF WATER TO SWINDON AND OXFORDSHIRE (SWOX)

Location :

Date : 30th October 2008

Fig. No. : FIGURE 2
(Figure 2.7 in EIA Scoping Report)

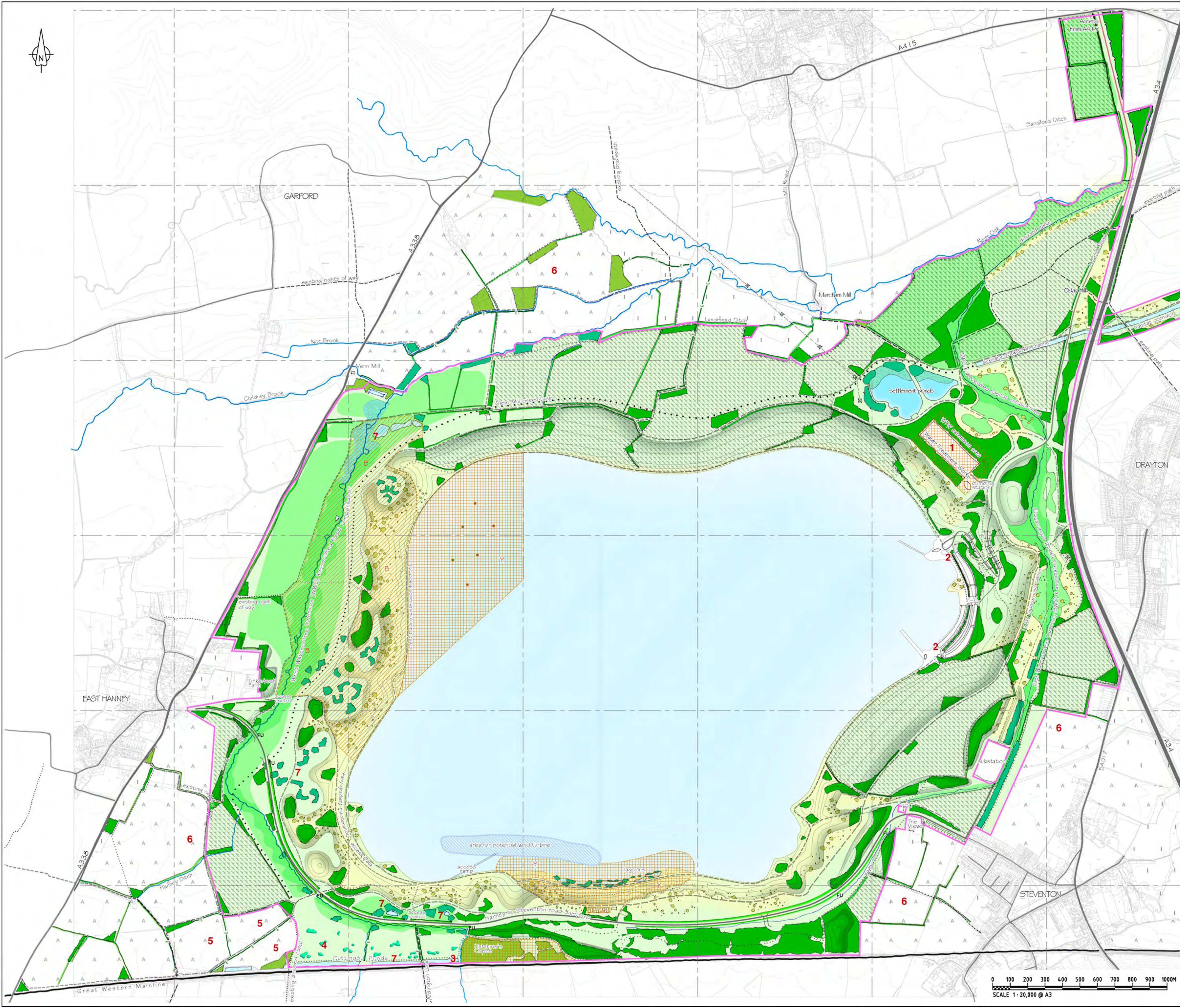


- LEGEND**
- Surrounding public highway network
 - Proposed vehicle access routes
 - Proposed parking
 - Controlled exit only traffic from Visitor Centre / Water Sports Centre parking during/after occasional large events; and controlled school access from Education and Study Centre to Visitor Centre and other reservoir facilities.

Current design for EIA Scoping – may be subject to change.
All buildings and structures shown on the plan will be subject to Limits of Deviation on their locations and scale parameters with respect to their dimensions for the application.



Project Name:	UPPER THAMES RESERVOIR
Title:	ILLUSTRATIVE ACCESS, CIRCULATION AND PARKING PLAN
Drawing Ref:	7LTC-E2-FIG-80001-EX REV G/2
Location:	
Date:	30 OCTOBER 2008
Figure No:	FIGURE 3 (Figure 2.12 in EIA Scoping Report)



LEGEND

	Reservoir open water
	Watercourses and ditches
	Ponds and scrapes
	Reedbed
	Flushes
	Wet woodland
	Broadleaved woodland
	Species-rich hedgerow and hedgerow banks: Existing/proposed
	Unimproved neutral grassland
	Scrub and unimproved neutral grassland
	Damp/wet unimproved neutral grassland
	Scrub and damp/wet unimproved neutral grassland
	Land suitable for agricultural purposes
	Indicative principal areas of restricted public access: Year round/bird breeding season
	Rafts for breeding/roosting birds (summer only)
	Potential fauna underpass
	Corridor for future canal
	Existing and proposed rights of way and permissive footpaths/bridleways: Year round/seasonal access
	Proposed contours (5m intervals)
	Application boundary
Existing habitat outside application boundary	
	Existing arable farmland
	Existing improved grassland
	Existing woodland

For detailed existing habitat information refer to Phase 1 Habitat Map (7LTC-E2-FIG-60190B-EX)

Notes:

- 1 Water treatment works and pumping station
- 2 Visitor facilities
- 3 Hutchins's Copse and Cuttings Ponds
- 4 Habitat creation and species translocation area
- 5 Potential additional habitat creation and species translocation area
- 6 Hedgerow and copse programme on existing agricultural land subject to agreement with landowners
- 7 Potential off embankment managed open water/reedbed habitat

Current design for EIA Scoping – may be subject to change. All buildings and structures shown on the plan will be subject to Limits of Deviation on their locations and scale parameters with respect to their dimensions for the application.

Project Name: UPPER THAMES RESERVOIR

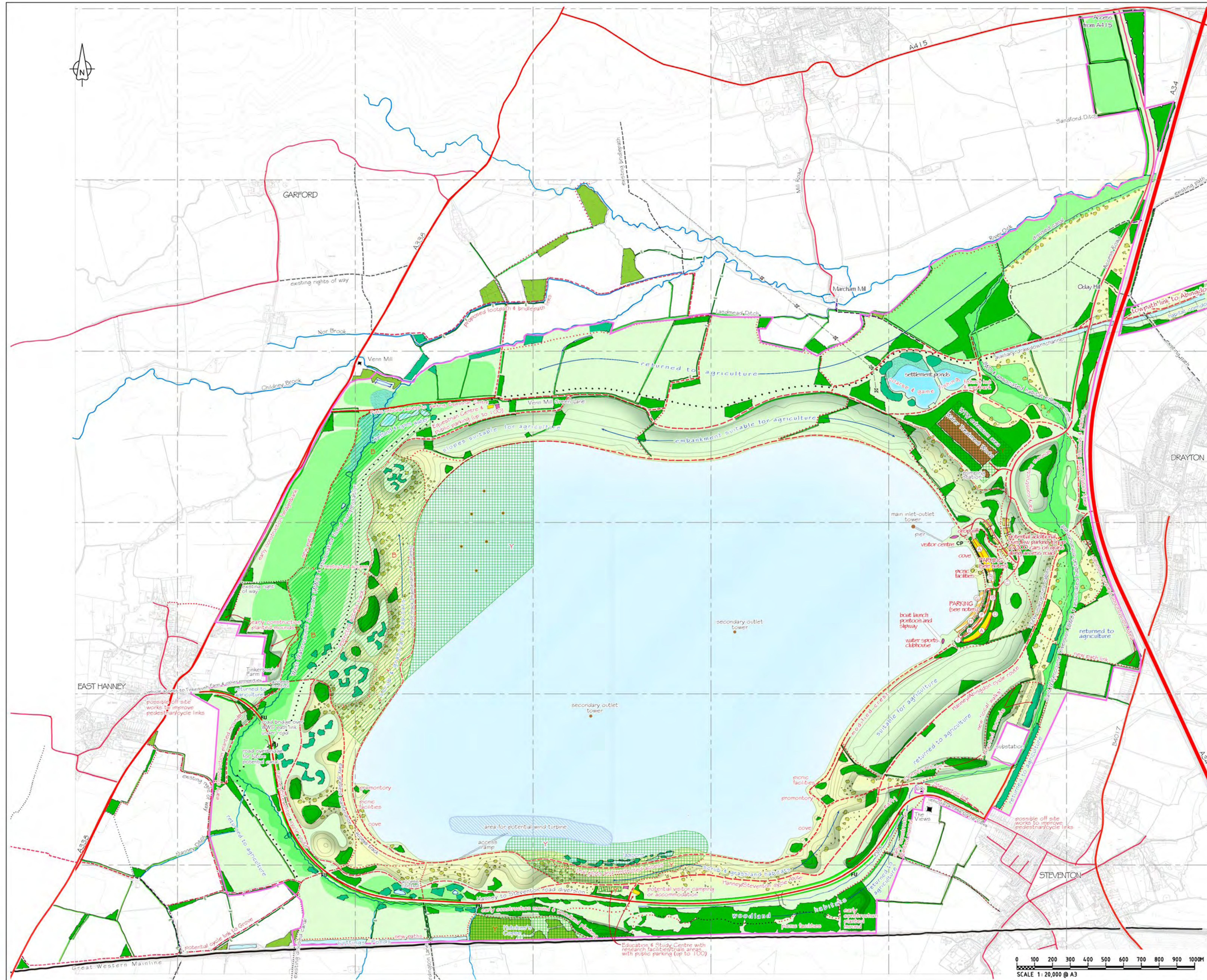
Title: ILLUSTRATIVE LANDSCAPE & HABITAT PLAN

Drawing Ref: 7LTC-E2-80030-EX-REV G/2

Location:

Date: 30 OCTOBER 2008

Figure No: FIGURE 4
(Figure 2.13 in EIA Scoping Report)



LEGEND

	Existing rights of way: Footpath/bridleway
	Proposed paths: Footpath/bridleway
	Proposed restricted access path: Footpath/bridleway
	Existing footpath converted to bridleway
	Road
	Parking: Car/Overflow/Boat
Notes:	
	A Car park
	B Car park overflow
	C Two way boat club access with trailers
	D Boat trailer loop
	E Boat parking
	F Boat trailer only return loop
	G Additional race day boat parking
	H Race day additional trailer return loop
	I Thames Water Maintenance Depot

	Corridor for future canal
	Proposed contours (5m intervals)
	Existing buildings
	Proposed built development: Operational/Recreational
	Existing woodland
	Proposed woodland/copses: Broadleaved/Wet
	Hedgerows: Existing/proposed
	Watercourses
	Open water
	Unimproved neutral grassland
	Unimproved neutral grassland and scrub
	Damp/wet unimproved neutral grassland
	Damp/wet unimproved neutral grassland and scrub
	Reedbeds
	Indicative principal areas of restricted public access: Year round/bird breeding season
	Rafts for breeding/roosting birds (summer only)
	Children's play
	Potential fauna underpass
	Application Boundary

- Red text indicates proposed illustrative recreational facilities/activities.
- Blue text indicates broad habitats proposed by the illustrative landscape & habitat plan.
- Black text indicates facilities required for the operation of the reservoir.

Current design for EIA Scoping – may be subject to change. All buildings and structures shown on the plan will be subject to Limits of Deviation on their locations and scale parameters with respect to their dimensions for the application.

Project Name:
UPPER THAMES RESERVOIR

Title:
ILLUSTRATIVE RECREATION PLAN

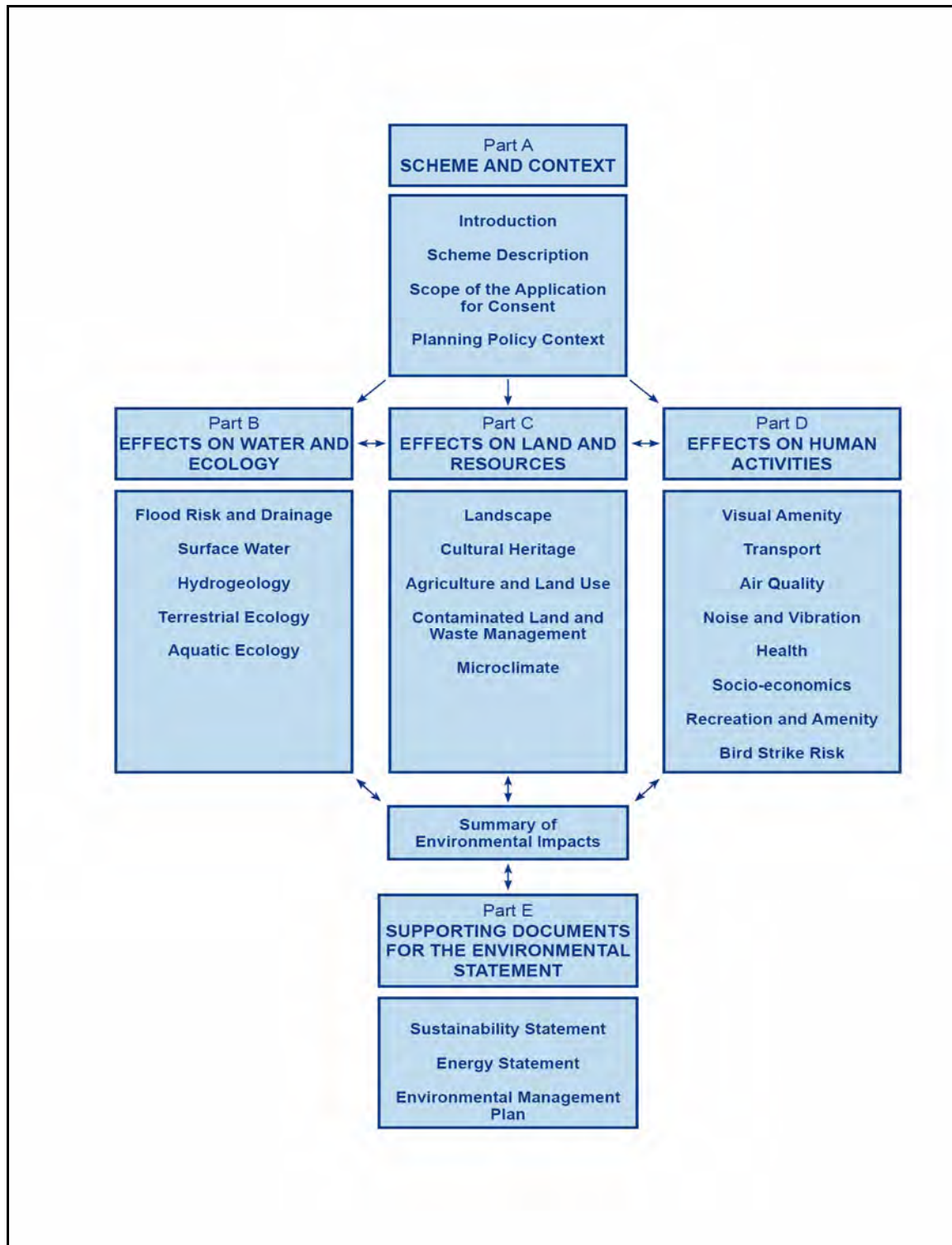
Drawing Ref:
7LTC-E2-800105-EX-REV G/2

Location:
STEVENTON

Date:
30 OCTOBER 2008

Figure No:
FIGURE 5
(Figure 2.15 in EIA Scoping Report)

Figure 6 The Technical Areas of Study that Comprise each Part of the EIA Scoping Report and their Inter-Relation



and support (eg fish, insects and plants that are found in or near water) are considered, together with likely impacts on plants and animals that are found on the farmland and woodlands in the area. Animals such as badgers, bats and reptiles could be affected by a loss of habitat, as a large area would be covered by water once the reservoir is constructed. Changes to the flows, channel form and quality of watercourses and the risk of flooding in the surrounding area are also addressed.

Effects on Land and Resources

Issues such as the loss of a large area of agricultural land and the effects of the construction of the reservoir on existing archaeological resources in the ground (such as flints, shards of pottery and other remnants from the Saxon, Roman and other periods) will be considered. The potential for contaminated ground to be disturbed and the creation of waste materials will also be addressed, along with possible changes in local weather conditions (fog and frost, wind, humidity and temperature) that might be caused by the introduction of a large body of water into the environment.

Effects on Human Activities

A wide range of issues will be covered in this area. Transport, air quality and noise and vibration are closely linked. These topics will focus on potential changes to the amount and flow of traffic on the A34 and local roads arising from construction, reservoir operation and its use for recreation. The way in which noise and exhaust fumes from construction plant and lorries and dust from excavation and other construction activities would change over time and could affect local residents and the wider community will be addressed. Possible effects of these activities on the health of local residents, and the benefits to health associated with the proposed recreational opportunities that the reservoir could provide, will also be explored.

The large size of the proposed reservoir means that it has the potential to influence both the numbers and movements of large flocking birds such as gulls. Therefore, any potential risk to low flying aircraft needs to be assessed.

Supporting Documents to the Environmental Statement

In addition to the more technical aspects of the assessment, the following documents will also be prepared as appendices to the ES: a Sustainability Statement; an Energy Statement; and an Environmental Management Plan (EMP). In line with Government guidance on sustainable development, Thames Water aims to address sustainability issues by planning and operating in an environmentally, socially and economically responsible way. A Sustainability Appraisal of the proposed scheme will be undertaken to contribute to the integration of sustainability considerations into the design and implementation of the project. The results of this appraisal will be reported in the Sustainability Statement.

An Energy Statement will be prepared that sets out how energy use would be minimised, how energy efficiency would be addressed and explains the rationale for renewable energy provision for the scheme. The context for consideration of energy issues is set by national and regional energy and planning policies, which define by how much energy use and carbon emissions should be reduced, in addition to Thames Water's commitment to reducing the company's carbon emissions. The EMP will set out a framework within which the environment in and around the reservoir would be managed during construction and operation. If the scheme was given consent, a much more detailed plan would be worked up and agreed with the VoWHDC and its consultees before any work started on the site.

Summary of the Main Potential Environmental Effects

A summary of the main potential environmental effects that could arise from construction and operation of the reservoir and its subsequent use for recreation is given in **Table 1**. This includes both negative (adverse) and positive (beneficial) effects. Whether these effects will arise, and the significance of the impacts if they do, will be examined through the EIA process.

The potential impacts listed in **Table 1** are **before** any mitigation has been applied, ie before any measures have been put in place to avoid, reduce or otherwise remedy the impacts. Mitigation of some potential impacts has already been incorporated into the proposed design (for example flood compensation storage to reduce flood risk). The EIA will identify other mitigation measures needed and what residual (remaining) impacts would be expected after mitigation.

Comments on the Scoping Report

The Scoping Report therefore sets out how Thames Water and its EIA team intend to undertake the EIA of the proposed reservoir. Comments on its coverage and the proposed EIA methods would be welcome, together with advice on any further sources of baseline data that might be available to inform the assessment.

Comments on the scope and methodology of the EIA should be sent to:

Mike Gilbert
Planning Officer
Vale of White Horse District Council
Abbey Close, Abingdon
Oxfordshire OX14 3JE

Comments can also be sent to the following e-mail address:

planning.dc@whitehorsedc.gov.uk.

Table 1 Summary of Main Potential Environmental Impacts before Mitigation

EIA Topic	Construction	Operation	Recreational use
Part B Effects on Water and Ecology			
Flood Risk and Drainage	Partial loss of floodplain	Less but quicker rainfall runoff Groundwater flooding	None anticipated
Surface Water	Diversion of brooks and ditches Changes to hydrology and wetland habitats of River Ock Turbid or contaminated runoff to watercourses	Effects of water abstraction and release on River Thames Water quality in reservoir and releases to River Thames eg algal growth	Effects of water release on navigation in River Thames
Hydrogeology	Change to local groundwater levels and flow Contamination of groundwater	Changes to local groundwater levels and flow Changes to surface water flow and quality in discharge zone	None anticipated
Ecology (terrestrial and aquatic)	Temporary loss, damage and disturbance to habitats and species	Permanent loss of habitats and species Effects of water abstraction and release on river ecology Nuisance from eg invasive species, midges Biodiversity gains through ecological enhancement	Beneficial research at Education and Study Centre
Part C Effects on Land and Resources			
Landscape	Loss of landscape elements on site Change to perceptual characteristics of the landscape Impact of construction activity and traffic on local landscape policy areas and setting of North Wessex Downs Area of Outstanding Natural Beauty (AONB)	Permanent addition of new landscape elements and features resulting in permanent changes to landscape character Potential impact on local landscape policy areas and setting of North Wessex Downs AONB	New recreational elements resulting in change to landscape character Potential impact on local landscape policy areas and setting of North Wessex Downs AONB
Cultural Heritage	Loss of archaeological features Impact on the setting of historic buildings Provision of Wilts & Berks Canal route corridor	Impact on the setting of historic buildings Restoration of part of Wilts & Berks Canal along auxiliary drawdown channel	None anticipated
Agriculture and Land Use	Temporary loss of agricultural land Disruption to field drainage and increased flooding Nuisance from dust Fragmentation and severance of farm holdings	Permanent loss of agricultural land Reconstruction of existing farms	None anticipated
Contaminated Land and Waste Management	Remediation of contaminated land Effects of waste recycling on-site and disposal off-site	Minimal impacts from operational waste	Litter
Microclimate	None anticipated	Increased incidence of fog and frost Changed wind characteristics, cloud formation and rainfall, and shading	None anticipated
Part D Effects on Human Activities			
Visual Amenity	Intrusion of construction activity into views	Blocking of existing views to the North Wessex Downs Intrusion of new features into existing views Potential beneficial impacts arising from blocking of views eg of Didcot Power Station Creation of new views eg from reservoir embankments	Visual impact of new recreational activities Creation of new views for recreational users
Transport	Higher traffic densities, disruption and diversions on local and trunk roads Increased rail movement on London-Bristol mainline	Changes to local transport infrastructure Additional operational traffic including biomass delivery	Additional traffic on local and trunk roads. Parking in local villages

EIA Topic	Construction	Operation	Recreational use
Air Quality	Dust generation Increased exhaust emissions from construction traffic	Increased exhaust emissions from reservoir maintenance traffic Emissions from biomass plant	Increased exhaust emissions from recreational traffic
Noise and Vibration	Noise effects of construction traffic and plant Noise and vibration effect of piling and tunnelling	Noise from renewable energy infrastructure	Noise from recreational activities and associated traffic
Health	Health effects from dust, noise, contaminated soil, flooding Stress effects of changes in quality of environment	Health effects associated with renewable energy infrastructure	Benefits of recreation
Socio-economics	Risk of planning and property blight Increased pressure on local services Increased local employment opportunities and expenditure on local goods and services	Direct local employment on site	Local economic benefit
Recreation and Amenity	Temporary footpath and bridleway disruption Loss of existing recreational activities	Creation of replacement footpaths, bridleways and cycleways, plus a new link to the River Thames and Abingdon Effects on existing leisure uses of River Thames	New opportunities for recreational activities and public access
Bird Strike Risk-	Large birds (eg gulls) attracted to open water areas causing hazard to aircraft	Large birds attracted to reservoir and its environs (eg gulls, geese, cormorants) causing hazard to aircraft	None anticipated