



# Oxford Flood Alleviation Scheme Environmental Action Plan

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# *Oxford Flood Alleviation Scheme*

## **Environmental Action Plan**

Prepared for  
**Environment Agency**

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Jacobs U.K. Limited  
1 Glass Wharf  
Bristol, BS2 0EL  
United Kingdom  
+44 (0)117 457 2500

### **Document history and status**

<b>Revision</b>	<b>Date</b>	<b>Description</b>	<b>By</b>	<b>Review</b>	<b>Approved</b>
1	19.01.2022	New EAP for Scheme as proposed in 2022, replacing 2018 document	D Mackenzie	J Barnes	P J Marsh

## Introduction

This Environmental Action Plan (EAP) summarises the actions required to implement the environmental mitigation and outcomes contained within the Environmental Statement (ES) that has been prepared following Environment Agency Operational Instructions. It sets out specific objectives and targets defining the way in which we wish the ES and its relevant findings to be addressed during the implementation phase of the project (detailed design and construction and post-construction phases). It also details roles and responsibilities of those involved in the proposal and refers to all temporary and permanent works.

These actions form part of the contract documentation and must be adhered to.

This version of the EAP is a draft created prior to the contract, to show the actions required. The version issued to the contractor will contain names and contact details for those responsible for specific aspects of the Scheme and appended documents containing additional information.

## Roles

Each action in Tables 2 to 4 has one named person (see Table 1) who is responsible for ensuring that the action is implemented. It is ultimately the contractor's responsibility for ensuring the EAP commitments, which may include planning conditions, are delivered.

The Environment Agency Project Manager has overall responsibility for the project and ensuring that the EAP is implemented and updated as appropriate. The National Environmental Assessment and Sustainability (NEAS) team are responsible for agreeing any changes to the EAP and for signing off or agreeing to the signing off of the actions.

The Contractor and the Engineering and Construction Contract (ECC) Project Manager are responsible for advising NEAS on any changes to method statements or the planned construction work as these may result in changes to the EAP or additional consultation with statutory consultees. NEAS will assess the significance of these changes and determine the appropriate course of action.

The Contractor is also responsible for implementing good environmental practice on site, in line with their own EMS, including adherence to regulatory requirements and good practice advice, similar to that provided in the former Pollution Prevention Guidelines (PPG - e.g. the former Pollution Prevention Guidelines 5: Works and maintenance in or near water and CIRIA guidance), the principles of Considerate Contractors (<https://www.ccscheme.org.uk/>) and the Safety, Health, Environment and Wellbeing Code of Practice (SHEW CoP) (Environment Agency, 2018).

Whilst the requirement to adhere to these standard procedures is cited in this EAP, the individual procedures are not listed.

Jacobs will provide site supervision during construction of the Scheme, by a qualified and competent Environmental Clerk of Works (ECoW). The ECoW will monitor adherence to the EMS and EAP. Typical issues include:

- Any working hour restrictions
- Dust suppression measures
- Adherence to protected species requirements and licence conditions
- Management of invasive species
- Traffic management
- Site waste management
- Materials management
- Maintenance of the carbon calculator
- Vehicle maintenance and management

- Pollution prevention and control (including storage, refuelling and incident response)
- Response procedures e.g. services strike, contaminated land
- Hazardous materials handling and storage
- Noise management
- Securing and delineation of working areas including signage
- Vegetation and tree protection measures
- Soil de-compaction measures in relevant areas
- Inspection of subsoil in areas to be planted and the inspection (and analysis, where relevant) of topsoil prior to and during spreading and cultivation.

**Table 1: Roles and Responsible Parties**

Role / Responsible Party	Representative	Contact Details
Environment Agency Area Client	TBC	TBC
Environment Agency Project Manager	TBC	TBC
Environment Agency NEAS Officer	TBC	TBC
Consultant Project Manager	TBC	TBC
Consultant Environmental Clerk of Works (ECoW)	TBC	TBC
Consultants Environment Lead	TBC	TBC
Principal Contractor	TBC	TBC

The names and contact details of the individual roles in the above table will be confirmed prior to commencement of any works.

The Environment Agency's Principal Designer and Environmental Clerk of Works will oversee the health and safety of the project, ensuring it is implemented in accordance with the Environment Agency's Safety, Health, Environment and Wellbeing (SHEW) Code of Practice (CoP).

Jacobs will also provide a Landscape Clerk of Works (LCoW) and Arboricultural Clerk of Works ACoW) to oversee all landscape and arboricultural aspects of the construction contract for the duration of the works.

## Environmental Audits

The appended template should be used when undertaking any site audits during construction. Such audits can be undertaken by NEAS Environmental Project Managers (EPM) or delegated by NEAS to the ECoW or other individuals. Technical assistance can be obtained from functional staff as appropriate. Site audits can potentially highlight good practice and can be separate to the review of EAP actions as undertaken in progress meetings. They do not replace the regular checks undertaken by the ECoW during the works; no set template has been provided for this.

# Environmental Incident Reporting

An Environmental Incident is defined as either a failure to meet an environmental target or an adverse environmental occurrence not included in the EAP.

All environmental incidents must be reported to the Environment Agency Incident Hotline 0800 80 70 60 as per the Environmental Incident Reporting Poster at the earliest opportunity and then to the ECC Project Manager, Site Supervisor, Environment Agency Project Manager, Environment Agency NEAS Environmental Project Manager and ECW. In addition, near misses must be reported via the hotline where there was/is the potential for a significant impact and where lessons can be learned.

Initial reports for such incidents and near misses must be followed by a written report using the Contractor's in-house forms. This must include the following information: project/location, date, contractor, NIRS reference number, details of what happened, cause of incident, lessons learned. This final and comprehensive investigation report is to be provided by the Contractor to the ECC Project Manager, Environment Agency Project Manager and Safety, Health and Environment Manager within 14 days.

## Summary of Scope of Works

### *Works*

Refer to Chapter 3 of the ES for the scope and location of works, and to the engineering drawings for detail.

### *Programme*

A detailed construction programme will be developed during the detailed design stage of the Scheme, which will minimise disruption to residents and tourists in Oxford and will minimise or avoid impacting on known protected species and fish.

Key ecological timings to be considered in advance of construction include:

- Vegetation clearance to avoid the breeding bird season: (Late February to end September)
- Bird nest boxes to be installed during the first winter of the Scheme, during vegetation clearance
- Eradication/removal of invasive species: October to April
- Artificial badger sett(s) to be constructed six months before the relevant temporary sett closure or disturbance to a main sett is undertaken
- Closure and disturbance of active badger setts: 1 July to 30 November only
- All works that directly affect gravel beds within channels or works causing elevated sediment suspension/deposition (plus sheet piling): dates to be agreed in advance with the Environment Agency fisheries team, to take account of fish spawning seasons
- If required, water vole displacement: 15 February to 15 April (using Natural England Conservation licence) or 15 September to 30 November (using Natural England class licence)
- If required, water vole translocation: 1 March to 15 April (as last resort 15 September to 30 November)

It is planned that all the main works will be within the summer months when there is less risk of high flows and wet ground conditions, which could affect construction activities and increase the risk of soil and sediment mobilisation.

The normal working hours for the construction of the Scheme will be 7.00am to 7.00pm Monday to Friday and 8.00am – 1.00pm Saturday (with piling works restricted 8.00am – 6.00pm Monday to Friday). No construction activities will be undertaken outside of these

hours or on Public Holidays without the prior written agreement of the Environment Agency Project Manager.

Detailed site management plans will be prepared by the Contractor in advance of the construction works, and these will include arrangements for traffic management, delivery of materials and equipment to the various working areas and site compounds. The haul routes and locations of the primary site compounds (subject to agreement with stakeholders and landowners) are to be appended to this EAP when agreed.

Some work will be undertaken in winter when many of the working hours will be after dark. Care will be taken to ensure safe working and minimise noise and light disturbance to local residents and protected species where possible. Security lighting may also be required at compounds.

Full details of the works including plans, method statements and programme can be found in the contract documents prepared by the contractor (when available). These should be reviewed by the ECoW prior to works starting on site.

## Environmental Action Plan

Tables 2 to 4 summarise the specific actions required to avoid, reduce or minimise environmental impacts that may be experienced during the works. The tables are designed to assist in the effective management of environmental risks associated with the works and ensure protection of the environment.

**These tables may require further revisions during the completion of the detailed design stage of the Scheme and following continued consultation with relevant stakeholders including landowners, Environment Agency specialists and key external stakeholders.**

Landscape masterplans showing the proposed Scheme are available as Appendix I-6 of the Environmental Statement. A detailed Environmental Constraints Plan to support the EAP tables will be prepared during the detailed design stage of the Scheme.

**Table 2: Environmental Action Plan: PRE-CONSTRUCTION**

Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement/ update
<b>PRE-CONSTRUCTION</b>						
<b>General</b>						
PR1	To adhere to any conditions of the Planning Permission	Ensure all planning conditions are discharged in writing to Oxfordshire County Council Planning Department and await approval before proceeding with the relevant works.	To ensure works are legally compliant	Environment Agency Project Manager		
PR2		Include any additional actions resulting from planning conditions and dates by which they must be completed in this EAP.	Discharge of planning conditions	Jacobs		
PR3		Submit a Construction and Environmental Management Plan in accordance with detailed conditions to the Environment Agency Project Manager and ensure sign-off with Oxfordshire County Council.		Contractor		
PR4	To ensure the works are appropriately programmed	Ensure that the Contractor plans the construction programme in accordance with any seasonal and ecological restrictions identified in the Environmental Statement.	Works appropriately programmed to minimise environmental impact	Environment Agency Project Manager	See environmental restrictions programme	
PR5		Work with the ECW /Environment Agency to ensure European Protected Species (EPS) licences, other species' licences and consents for fish rescues are obtained in good time for the site works programme.		Contractor		

Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement/ update
<b>PRE-CONSTRUCTION</b>						
<b>Local Community</b>						
PR6	To obtain agreement from landowners	Liaison with landowners to discuss and agree entry and access to sites, including aftercare/maintenance during landscape establishment and future operation.	To ensure legal entry to land has been obtained	Environment Agency		
PR7	To minimise disturbance to users of public space	Erect and maintain signage around works to inform the local community of the works taking place and any likely access restrictions.	No valid complaints from the local community.	Contractor		
PR8	To minimise disruption to local residents, recreational users, road users/commuters and businesses during construction	Work with Oxfordshire County Council to agree road closures and advertise the closure of Old Abingdon Road and Kennington Road in advance of construction.	No valid complaints from the local community.	Contractor		
PR9		Prepare working method statement for the construction works in line with the Traffic Management Plan to include adherence to best practice working methods and defined working hours i.e. 7.00am to 7.00pm Monday to Friday and 8.00am – 1.00pm Saturday (with piling works restricted 8.00am – 6.00pm Monday to Friday). Specific arrangements to be made where sensitive receptors may be affected at particular times of day (e.g. school drop-off and collection times, particularly at South Hinksey Interchange). Note that, if the rail sidings are used, there will be work outside these hours, confined to the rail sidings (see ES Chapter 16).	No complaints from the local community.	Contractor	The planning application for use of the rail sidings will have its own EAP; actions from this will be added to this EAP if the sidings are to be used.	



Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement/ update
<b>PRE-CONSTRUCTION</b>						
PR10		Inform occupiers of sensitive residential receptors of the nature, timing and duration of the construction activities, including traffic controls and reinstatement of land.	No valid complaints from the local community.	Contractor		
PR11		Appoint a Public Liaison Officer to address local community concerns	To listen to the concerns of the local community.	Contractor		
PR12		Work with public transport providers to mitigate impacts on transport routes	Minimal disruption to local community from traffic congestion	Environment Agency Project Manager		
<b>Recreation and Public Access</b>						
PR13	To minimise disturbance to the public from access restrictions and from traffic congestion	Finalise the draft site wide Construction Traffic Management Plan (CTMP) in consultation with the Oxfordshire County Council Highways team (see action under Traffic and Transport). [This plan shall be submitted as part of the Construction Phase Plan] Include the following measures in the CTMP: - <ul style="list-style-type: none"> <li>• clear demarcation of vehicle and pedestrian routes and how interactions will be dealt with.</li> <li>• inform the local community of the nature and duration of the temporary footpath/cycleway closures (and diversions) and alternative provisions of access through signage and webpage updates. For permissive and informal</li> </ul>	Agreement of the CTMP with the Oxfordshire County Council Highways team	Jacobs Project Manager	There are a number of public and permissive footpaths and bridleways, which need to be permanently or temporarily diverted during the construction of the works. Initial plans for each of the diversions have	

Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement/ update
<b>PRE-CONSTRUCTION</b>						
		<p>footpaths, post notices for closures and diversions on the affected footpath at least 4 weeks before any diversion is implemented to give adequate notice to the public.</p> <ul style="list-style-type: none"> <li>• Continue to liaise with Oxfordshire County Council Public Rights of Way officer to pre-agree appropriate closure/diversion routes for footpaths, the bridleway and cycle paths with the identification of appropriate alternative routes to accommodate users of the footpaths and strategic cycling corridor. Provide signage prior to closures/diversion. Indications of roads and paths needing diversion or temporary closure are in the ES, Figures 3.2, 6.2 &amp; 6.3.</li> <li>• Where diversions are required, ensure these are within acceptable distance thresholds for users and aligned with desire lines. Diversions which do not match those indicated in the ES, or specified by planning conditions, are to be agreed with Oxfordshire County Council before use.</li> <li>• Where interfacing with routes, ensure hoardings enclose the work area to contain construction activities. Where hoarding will encroach onto existing footpaths to provide working space for construction activities, maintain a general minimum footpath width of 2m.</li> </ul>			<p>been discussed with Oxfordshire County Council Public Rights of Way Officer.</p> <p>The Contractor is responsible for the final layout, application, payment for and programming of the diversions and closures.</p>	

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<b>PRE-CONSTRUCTION</b>						
		<ul style="list-style-type: none"> <li>ensure that construction materials and soil are swept off any affected footpaths, the bridleway and cycleways.</li> </ul>				
PR14	To minimise disturbance to water based recreational users from restricted access to Bulstake and Hinksey Stream, and the River Thames	<p>Mark channels (Bulstake and Hinksey Streams) to be closed during construction with navigation markers and warning signs, in advance of the works.</p> <p>Consult water-based recreational groups/societies and landowners with riparian interests on restrictions to watercourses during construction.</p>	No complaints from water-based recreational users	Environment Agency Project Manager		
<b>Landscape and Visual Amenity</b>						
PR15	To maintain long-term visual appearance of works areas.	Follow Landscape and Habitat Creation: Delivery and Management Plan, and Landscape Specification to inform the long-term management of the works areas, and to incorporate requirements for vegetation management.	Effective long-term management of works to achieve and balance flood conveyance and environmental objectives.	Jacobs	See General Arrangement Landscape Plans (ES Appendix I-6) and Landscape and Habitat Creation: Delivery and Management Plans (EA/Gillespies 2022)	

Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement/ update
<b>PRE-CONSTRUCTION</b>						
<b>Flora and Fauna</b>						
PR16	To mitigate the loss of floodplain meadow (part of Hinksey Meadow)	Seek agreement to use green hay from Hinksey Meadow, if possible (or Oxford Meadows) to spread on proposed new MG4a areas. If green hay or seed from these sources is not available, obtain MG4 seed from as local a source as possible.	Increase area, through creation, of MG4a habitat	Environment Agency NEAS	See MG4a mitigation strategy (ES Appendix D-23)	
		Sign a management agreement with the landowners and tenant(s) of the new meadow areas to ensure they are managed as meadow and mown in late summer following completion of Scheme.				
PR17		Prepare method statement for MG4a turf translocation for approval by EA.				Increase area, through creation, of MG4a habitat
PR18	If translocation of MG4 turf is approved by the landowner of Hinksey Meadow, carefully lift MG4 turf that will need to be taken up to create the second stage channel and translocate directly to proposed MG4 meadow area. If landowner approval is not received, instead store the turf offsite and translocate to the lower second stage at Hinksey Meadow when this is complete, or return it to the landowner if so requested. Lifting is to be done in September.	Contractor	See MG4a mitigation strategy (ES Appendix D-23)	Translocation to be carried out by a grassland specialist.		

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<b>PRE-CONSTRUCTION</b>						
		Translocation to the second stage can be March or September.				
PR19	To avoid/reduce impacts on badgers	Close affected setts within works areas under licence prior to construction, where possible and necessary.  Before closing any setts, install one-way gates on all entrances and monitor as per standard methodology and good practice. Supervise the destruction of any setts required to enable the Scheme to proceed.	No harm to badgers and full compliance with the Protection of Badgers Act 1992 and Wildlife and Countryside Act 1981 (as amended) (W&CA)	ECW	See Badger Assessment (Jacobs, 2020) and Badger Settle Activity Survey (Jacobs, 2020)	A toolbox talk will be provided to contractors prior to the commencement of works so that any new badger setts can be identified and reported.
PR20		Provide Heras fencing to enforce an exclusion zone (generally expected to be 30m) around badger setts that are not being closed or disturbed and are within the vicinity of the works, in discussion with the ECW.	No harm to badgers and full compliance with the Protection of Badgers Act 1992 and W&CA	Contractor	See Badger Assessment (Jacobs, 2020) and Badger Settle Activity Survey (Jacobs, 2020)	
PR21		To inform an appropriate mitigation strategy, carry out pre-construction survey work to identify any additional setts (such as outlier or satellite setts). This should include areas where limited or no previous access has been granted (e.g. Network Rail land).  Update the existing mitigation strategy/plan for badgers to provide advice on course of action if new setts are discovered.		ECW	See Badger Assessment (Jacobs, 2020) and Badger Settle Activity Survey (Jacobs, 2020)	

Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement/ update
<b>PRE-CONSTRUCTION</b>						
		Provide a toolbox talk to contractors prior to the commencement of works, so that any new badger setts can be identified and reported.				
PR22		Construction of an artificial sett to provide alternative shelter to badgers, at least 6 months prior to a sett disturbance/temporary sett closure. The design and location will be made available to Oxfordshire County Council but not made public.		Contractor	See Badger Assessment (Jacobs, 2020) and Badger Mitigation Strategy (Jacobs, 2021)	
PR23	To prevent spread of invasive plant species (notably Himalayan balsam and Japanese knotweed. Other invasive species - giant hogweed, montbretia, variegated yellow archangel, Himalayan cotoneaster, New Zealand pigmyweed, Virginia creeper	<p>Produce a management plan that demonstrates how invasive species will be dealt with on site with particular consideration of soil movement, storage and management. The management plan will need to be agreed with the Environment Agency in advance of scheme construction and must comply with the strategy set out in ES Appendix E-2.</p> <p>Instruct contractors to recognise invasive species, in particular Japanese knotweed and Himalayan Balsam and the species listed in the previous column: and maintain vigilance for any additional stands of these species or previously unidentified invasive plant species.</p> <p>Provide site operatives with identification cards for Japanese knotweed.</p>	Full compliance with the W&CA	Contractor	<p>Further guidance is provided in Invasive Non-Native Specialists Association (INNSA) Code of Practice Managing Japanese Knotweed (2017).</p> <p>See Invasive Species Updated Survey (EcologyLink, 2020) and Ecology Walkover Survey Report (Jacobs, 2020)</p>	

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<b>PRE-CONSTRUCTION</b>						
	and Canadian pondweed.)	Within site boundary, fence-off areas of identified Japanese knotweed in accordance with the Invasive Species Survey Plans to prevent interference and further spread during construction.				
PR24	To avoid impacts on amphibians	<p>As it must be assumed that great crested newts (GCNs) may be present, until absence is fully confirmed, produce a detailed mitigation strategy which will be agreed with Natural England in advance of the scheme construction.</p> <p>An eDNA survey will be undertaken more than one year prior to the start of construction, to advise this strategy or if a mitigation strategy will still be required. Mitigation for GCN is not required if the eDNA survey confirms they are not present.</p> <p>The mitigation strategy will inform an EPS licence application from Natural England and will be sought before any works which has the potential to impact GCN commence.</p> <p>Ecological supervision will be undertaken where necessary to ensure there is no harm to GCNs.</p>	No harm to GCNs and full compliance with the Wildlife and Countryside Act and Habitats and Species Regulations.	Jacobs (suitably licensed ecologist)	See Great Crested Newt Survey Report (Jacobs, 2021)	
PR25		Remove (dismantle by hand) all potentially suitable hibernacula outside the wintering (hibernation) period to minimise the risk of harm to amphibians. Undertake the work prior to or after the main bird breeding	No impacts on amphibians.	ECW		

Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement/ update
<b>PRE-CONSTRUCTION</b>						
		season to minimise the risk of disturbing nests (see PR24). Check hibernacula for amphibians and move off-site to a pre-determined 'safe' hibernacula/refugia. This action is to be carried out for the benefit of other amphibian species, even if GCN are confirmed absent.				
PR26	To avoid impacts on breeding birds	Undertake vegetation clearance outside of bird breeding season with the exception of certain areas where removal needs to be delayed in order to protect other species. If tree/scrub removal is required within the bird breeding season (March to August), request that ECW carries out a watching brief to identify whether breeding birds are using affected tree/area of scrub.	No impacts on breeding birds.	Contractor		
PR27		Carry out a pre-construction survey for kingfisher burrows and any early indications of nesting by red kites in the area. If a burrow/nest is found, as Schedule 1 species, an increased exclusion zone will be required as it is illegal to disturb Schedule 1 bird species whilst breeding. A risk assessment will need to be conducted to determine the likelihood of the birds being disturbed by the construction activities and also to inform the size of the exclusion zone. The exclusion zone will need to be maintained until the end of the breeding bird season.	No impacts on breeding birds.	Jacobs (suitably licensed ecologist)		



Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement/ update
<b>PRE-CONSTRUCTION</b>						
PR28	To provide replacement nesting habitats for displaced breeding birds	Identify sites for artificial nest-box installation outside the Scheme.	No impacts on breeding birds.	Environment Agency Project Manager	Artificial nest box designs are targeted for specific species and their locations will be based on data collected through previous breeding bird surveys.	
PR29	To protect any reptiles that may be using areas identified as supporting potentially suitable habitat.	<p>Construct new refugia sites, to compensate for the loss of habitat and refugia sites within the construction footprint.</p> <p>Undertake a programme of habitat manipulation (phased strimming during the spring/summer months prior to construction when reptiles are active, on all long grassland areas considered to provide suitable habitat for common reptile species (to be advised by the ECW), to render areas unsuitable for reptiles and to encourage any individuals present to move away from areas where they may be injured or killed. Strimming or mowing to be undertaken in stages, successively and gradually reducing the height and reducing the area of vegetation to displace any reptiles present. Initially, cut vegetation to 400mm above ground level, next day to 200mm and on the final day, cut to 50mm/ ground level to maintain the vegetation in a state unsuitable to</p>	No harm to reptiles and full compliance with the W&CA.	Contractor	<p>See Reptile Survey (Jacobs, 2020)</p> <p>New refugia sites to be in place prior to the removal of refugia within the construction footprint. Due to the low numbers of reptiles using the site during presence/absence surveys, it is considered that two new refugia sites will sufficiently mitigate for the loss</p>	

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<b>PRE-CONSTRUCTION</b>						
		<p>reptiles.</p> <p>Once the vegetation is removed to ground level, maintain the vegetation height at levels &lt;5cm to keep the habitat unsuitable for reptiles until construction activities have been completed.</p>			<p>of any habitat within the construction footprint.</p> <p>Due to the presence of grass snake during the surveys, create a grass snake egg laying heap and a hibernacula brush/log pile.</p>	
PR30		Remove (dismantle by hand) all potentially suitable hibernacula outside the wintering (hibernation) period to minimise the risk of harm to reptiles. Check hibernacula for reptiles and move off-site to a pre-determined 'safe' hibernacula/refugia.		ECW	See Reptile Survey (Jacobs, 2020)	
PR31	To avoid disturbance to bats and their roosts	<p>Agree the Bat Method Statement with Natural England prior to planning consent being granted.</p> <p>Assess bat roost potential of any additional trees requiring removal and undertake further inspection if necessary. Re-survey all trees with features of high bat potential well in advance of construction work commencing, to check whether any have been used by bats since the initial surveys, to allow a licence</p>	No harm to bats and full compliance with the Wildlife and Countryside Act and Habitats and Species Regulations.	Jacobs (suitably licensed ecologist)	Bat surveys (ES Appendices D-11 and D-12). Draft mitigation strategy ES Appendix D-13.	

Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement/ update
<b>PRE-CONSTRUCTION</b>						
		<p>application to be determined, or for variations of an existing licence to be agreed with NE.</p> <p>Carry out all surveys and inspections required by the Bat Method Statement. Fell trees using approved methods where required. Keep site lighting within agreed parameters to avoid disturbing bats in flight.</p>				
PR32		<p>Where necessary, obtain an EPS licence prior to removal of any trees or bat boxes or the disturbance of bridges supporting bat roosts and identify appropriate measures to mitigate the loss of bat roosts. NB at the time of submitting the planning application, eight confirmed and one possible bat roost were identified. Of these the removal of five trees and the works beneath Botley Bridge will require an EPS licence.</p>	<p>No injury or death of bats and no adverse impacts on conservation status of local population of bats.</p> <p>Full compliance with the W&amp;CA and Habitats and Species Directive.</p>	Jacobs (suitably licensed ecologist)	<p>See Bat surveys (ES Appendices D-11 and D-12)</p> <p>Tree felling should be minimised where possible, particularly those identified as having bat roost potential. Tree felling over winter (no hibernation roosts identified)</p>	
PR33	To avoid disturbance to otters and their resting sites	<p>Carry out pre-construction surveys, with periodic visits throughout the construction period to identify and confirm any new active holts and resting/lying up areas and confirm if previously identified potential resting sites subsequently become active, before the commencement of any vegetation clearance in that area.</p>	<p>Full compliance with the W&amp;CA and Habitat Regulations.</p> <p>No injury or death of otters or disturbance to</p>	Jacobs (suitably experienced ecologist)	<p>If otter use is identified during pre-construction or surveys during construction, specific working methods may need</p>	

Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement/ update
<b>PRE-CONSTRUCTION</b>						
			their resting sites.		to be identified that are less disturbing to otters. The size of the exclusion zone will be a minimum of 30m but will be decided on a case by case basis. If a maternal holt is identified, an exclusion zone of up to 150m will need to be established to prevent disturbance, but again will be decided on a case by case basis.	
PR34		<p>Dismantle potential otter holts with no evidence of use prior to vegetation clearance commencing.</p> <p>Establish an exclusion zone around any holts that are being monitored for activity or are known to be active, to prevent disturbance prior to any works taking place.</p> <p>In areas of dense vegetation, care should be taken for the possibility of a holt being present when carrying out vegetation clearance.</p>		Jacobs (suitably experienced ecologist)		
PR35		<p>Any active holts that need to be destroyed, should be closed following the detailed guidance under an EPS licence with respect to surveillance requirements to ensure that the otter is no longer using the holt; for maternal holts, the period of dependence by mother and young may be for a period of three months or more, and may require adaptations to the programme to allow for the otters to vacate the site.</p> <p>For active holts which do not need to be closed, a disturbance licence may be necessary depending on the proximity to the working area and the context of the holt.</p>		Jacobs (suitably experienced ecologist)	<p>Since breeding may occur at any time of year, the presence of active (maternal) natal holts can never be ruled out.</p> <p>See Otter Survey (Jacobs, 2020)</p>	

Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement/ update
<b>PRE-CONSTRUCTION</b>						
PR36	To avoid disturbance to water voles	<p>Carry out an updated water vole survey. Surveys should be undertaken between mid-April/early May and the end of June and a second between July and September, with at least two months between visits.</p> <p>Carry out pre-construction surveys for water vole four weeks before works commence.</p> <p>Re-assess the receptor site locations for water vole translocation and monitor areas to ensure they are free of water voles and mink. Improve the habitat in the new location well in advance of translocation as necessary.</p>	Full compliance with the W&CA.	Jacobs (suitably experienced ecologist)	See Water Vole Survey (ES Appendices D-16 to D-18)	
PR37		<p>If water voles are found within the Scheme area, under licence displace or trap and translocate them to receptor sites in line with licence conditions.</p>			Trapping water voles can only be done at specific times of year in accordance with a licence from Natural England.	
PR38	Maintain population of creeping marshwort	<p>Identify suitable site for translocation of creeping marshwort and arrange (in advance) for translocation of some of the plants for propagation off-site.</p> <p>Obtain a licence for translocation of creeping marshwort plants from Natural England</p>	Ensure survival of rare plants that may be affected by the Scheme. Comply with legislative requirements	Environment Agency Project Manager	See mitigation strategy for creeping marshwort (ES Appendix D-24)	Translocation of plants between March and May.

Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement/ update
<b>PRE-CONSTRUCTION</b>						
PR39		<p>Advance mowing of the vegetation in the ditch in which creeping marshwort grows within the paddock in Willow Walk Meadow, during the growing season (end of April to October) in advance of the construction period.</p> <p>Follow method currently in use.</p>	No change in creeping marshwort population	Environment Agency	Mowing to continue on the same basis as currently.	
PR40	Maintain population of whorled water-milfoil	Arrange for some of the whorled water-milfoil plants in Kennington Pit pond to be taken in advance of the works and grow them off-site, most likely in nursery conditions, to provide a pool of plants to recolonise in case of pollution incident.	Ensure survival of rare plants that may be affected by the Scheme.	Environment Agency Project Manager	See mitigation strategy for whorled water-milfoil (ES Appendix D-25)	Translocation of plants between March and May.
PR41	Avoid disturbance to fish	<p>Programme the works to remove Towles Mill Weir early in the construction programme, before Bulstake Stream is obstructed at the end of the construction period.</p> <p>Programme works which obstruct Bulstake Stream, Seacourt Stream or Hinksey Stream, or which directly affect fish spawning areas, to avoid March to July.</p> <p>Prepare a risk assessment and method statement for fish rescue at Kennington Pond, and any river works requiring a cofferdam, for approval and consent (to remove and transfer fish - see W12017.6) by the Environment Agency.</p>	Minimal impacts on fish	Contractor	The final actions of opening the Scheme, diverting water into the new channel, will take place no earlier than August.	

Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement/ update
<b>PRE-CONSTRUCTION</b>						
<b>Water and Hydromorphology</b>						
PR42	To protect groundwater and surface water quality	Prepare and implement a Sediment Management Plan. Regularly review and update the plan as the Scheme progresses to reflect changes to the works and programme.	No pollution of ground or surface water	Contractor		
PR43	To protect groundwater and surface water quality	Finalise details of the groundwater and surface water monitoring programme for the works, with control/trigger levels for level and quality.	No pollution of ground or surface water	Environment Agency Project Manager	Any discharge will be in accordance with Environment Agency permits, if required, to be agreed in advance.	
PR44	To protect groundwater and surface water quality	Develop a strategy for in-channel works and temporary stream diversions, to minimise both the disruption to ecological elements and the risk of siltation/scour during the construction phase. Plan to avoid the use of temporary culverts and use clear span bridges where possible.	No pollution of ground or surface water	Contractor	Any discharge will be in accordance with Environment Agency consents, if required, to be agreed in advance.  See WER Compliance Assessment (ES Appendix L)	

Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement/ update
<b>PRE-CONSTRUCTION</b>						
PR45	To protect groundwater and surface water resources	<p>Develop a groundwater control strategy and working method for new channel construction or channel clearance to prevent significant changes to groundwater level, including appropriate recharge of any abstracted groundwater back to the environment where appropriate, e.g. through recharge trenches/boreholes where feasible.</p> <p>Develop a water level monitoring strategy for the scheme.</p>	Reduced impacts on groundwater fed features	Contractor/ EA	Any abstraction/ discharge will be in accordance with Environment Agency permits, if required, to be agreed in advance.	
PR46	To protect groundwater and surface water quality	<p>Develop a methodology for excavations and piling in or adjacent to landfill areas, to specify suitable design, construction techniques and monitoring strategy; and identification of disposal routes for any contaminated water that is abstracted.</p> <p>Develop controlled waters remedial target values for any re-emplaced fill and incorporate into a final remediation strategy for any contaminated materials.</p> <p>Develop a water quality monitoring strategy for the scheme, including control and trigger levels for groundwater and surface water where they could be affected by scheme construction activities.</p>	No significant pollution of groundwater-fed features	Contractor	See Oxford Flood Alleviation Scheme: Contaminated Land Assessment (CH2M, 2018) and Addendum Contamination Report (Jacobs, 2022).	



Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement/ update
<b>PRE-CONSTRUCTION</b>						
<b>Historic Environment</b>						
PR47	To protect and mitigate archaeology and the historic environment during implementation of the works	Avoid impacts on archaeological remains where possible and preserve archaeology in situ where possible. Where preservation in situ is not possible, preserve by record.	Protect archaeological remains	Contractor (through the appointed sub-contracting archaeologist).	See Cultural Heritage chapter in Environmental Statement See WI 2024 'Archaeological Works' of Works Information	Preservation in situ methodology to be approved by NEAS, Oxford City Council and Oxfordshire County Council
PR48	To protect and mitigate archaeology and the historic environment during implementation of the works	Evaluate the MG4 grassland by archaeological trial trenching (as it was excluded during the previous programme of trial trenching). Undertake the following actions: <ul style="list-style-type: none"> <li>• Produce Written Scheme of Investigation (WSI);</li> <li>• Undertaken a programme of archaeological trial trenching;</li> <li>• Undertake any required specialist analyses or dating;</li> <li>• Produce an evaluation report on the results of the trial trenching;</li> <li>• Identify any mitigation areas based on the results of the trial trenching.</li> </ul>	Ascertain the presence or absence of archaeological remains within the MG4 Grassland	Contractor (through the appointed sub-contracting archaeologist).	See Cultural Heritage chapter and Appendix J in Environmental Statement See WI 2024 'Archaeological Works' of Works Information	WSI, evaluation report and mitigation areas to be approved by NEAS, Oxford City Council and Oxfordshire County Council

Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement/ update
<b>PRE-CONSTRUCTION</b>						
PR49	To protect and mitigate archaeology and the historic environment during implementation of the works	Agree and design archaeological mitigation areas through WSI(s). A single WSI may be acceptable for the entire scheme or separate WSIs may be required for each different archaeological mitigation type. Agree with Historic England the archaeological works required on the Old Abingdon Road culverts (Scheduled Monument).	Preserve archaeology by record	Contractor (through the appointed sub-contracting archaeologist).	See Cultural Heritage chapter in Environmental Statement See WI 2024 'Archaeological Works' of Works Information	WSI and mitigation areas to be approved by NEAS, Oxford City Council, Oxfordshire County Council and Historic England.
PR50	To protect and mitigate archaeology and the historic environment during implementation of the works	Undertake a programme of archaeological recording and mitigation including: <ul style="list-style-type: none"> <li>• Targeted excavation of the Old Abingdon Road;</li> <li>• Areas of Strip, Map and Sample;</li> <li>• Earthwork surveys;</li> <li>• A programme of geoarchaeological assessment;</li> <li>• Specialist analyses or dating, as required.</li> </ul>	Preserve archaeology by record	Contractor (through the appointed sub-contracting archaeologist).	See Cultural Heritage chapter in Environmental Statement See WI 2024 'Archaeological Works' of Works Information	Monitoring of the archaeological works may be required by NEAS, Oxford City Council, Oxfordshire County Council and Historic England.
PR51	To increase public awareness of local archaeology	Seek opportunities to show the public archaeological work as it is progressing during the project. This might include a web-site, boards / posters on outside of site fencing or for exhibitions, open days, school and local talks, press releases and social media outreach.	Opportunities identified to involve the public	Contractor (through the appointed sub-contracting archaeologist).	See Cultural Heritage chapter in Environmental Statement See WI 2024 'Archaeological	NEAS and OCC to set scope of community archaeology engagement

Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement/ update
<b>PRE-CONSTRUCTION</b>						
					Works' of Works Information	alongside final scope of mitigation
<b>Sustainable Use of Land</b>						
PR52	To minimise damage to soils	Programme the majority of earth movements and soil handling for between April and October when the soils are likely to be drier, as far as is practically possible.	No unnecessary damage to soils/land	Contractor		
PR53	To protect human health	Develop a final contaminated land remediation strategy for the scheme, to include derivation of re-use/remedial target values and measures for handling sampling, treatment and/or re-emplacment of any contaminated soils; and measures to deal with any soil gas risk.	No significant risk to human health	Contractor	Will include remediation strategy for controlled waters.	
<b>Air Quality</b>						
PR54	Minimise air pollution caused by the Scheme	Plan a six-month air quality monitoring campaign to be performed at a number of locations, and agree with Oxford City Council and the VoWH District Council in advance.  Commence the campaign three months before the construction phase begins (and continue for the first three months of the construction phase).	No long-term change in air quality	Jacobs	See Air Quality modelling (ES Appendix H)	

Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement/ update
<b>PRE-CONSTRUCTION</b>						
<b>Traffic and Transport</b>						
PR55	To minimise impacts on local road network (including public rights of way)	Establish a Transport Management Working Group for the duration of the works, in line with the requirements of the Construction Traffic Management Plan (CTMP).	No significant impacts on local road network	Environment Agency	See Appendix M of Environmental Statement.	TMWG monitor CTMP and ensure communication between contractor, LHA and National Highways.
PR56		Finalise the CTMP, provided in the Traffic Assessment, in consultation with the Environment Agency and the relevant highway consultees.  Comply with pre-construction mitigation measures outlined in the CTMP and adhere to requirements of Traffic Assessment (Appendix M of the Environmental Statement).		Contractor	See Outline CTMP and Appendix M of Environmental Statement.  It should be noted that there is a critical interface with the park and ride service providers due to known development works at Redbridge Park and Ride. The Contractor will need to be part of an agreed strategy of working to minimise conflicts.	

**Table 3: Environmental Action Plan: CONSTRUCTION**

Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement
<b>CONSTRUCTION</b>						
<b>Local Community</b>						
C1	To minimise disruption to local residents, recreational users and businesses (e.g. from noise, dust, vibration and access disturbance and visibility of works adjacent to public areas)	<p>Work in accordance with method statements, giving due consideration to noise and light impacts of the works.</p> <p>Adhere to defined working hours and best practice methods.</p> <p>Limit use of equipment on site to normal working hours i.e. 7.00am to 7.00pm Monday to Friday and 8.00am – 1.00pm Saturday (with piling works restricted 8.00am – 6.00pm Monday to Friday). No construction activities will be undertaken outside of these hours or on Public Holidays without the prior written agreement of the Environment Agency Project Manager. Specific arrangements to be made for sensitive receptors if required.</p>	<p>Compliance with agreed working hours.</p> <p>No valid complaints from the local community.</p>	Contractor	<p>Some work will be undertaken in winter when many of the working hours will be after dark – take particular care to ensure safe working and minimise noise and light disturbance to local residents where possible.</p> <p>Based on recommendations from the Vale of White Horse District Council, the Contractor may wish to apply for s61 pre-approval for agreed working practices with regard to noise around residential areas to avoid a</p>	<p>If quiet operations are required outside of the hours of 07:00am and 07:00pm Monday to Friday, this will require agreement with the Local Planning Authority.</p>

Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement
<b>CONSTRUCTION</b>						
					blanket requirement.	
C2	To minimise disruption to local residents, recreational users and businesses (e.g. from noise, dust, vibration and access disturbance and visibility of works adjacent to public areas)	<p>Keep working area tidy and compact and ensure no cross-contamination of construction or other materials and soils in storage areas.</p> <p>Suppress dust during long periods of dry weather.</p> <p>Only allow essential construction plant to access works areas.</p> <p>Provide appropriate signage.</p> <p>Affix and maintain plastic screening mesh to works boundary fencing to reduce dust and visual intrusion of works in areas where works are adjacent to public areas with higher footfall.</p>	No valid complaints from the local community.	Contractor		Inform the Environment Agency Project Manager within 48 hours of receiving any complaints.
C3	To avoid unnecessary disruption to recreational users of public footpaths, bridleways and cycleways	<p>Minimise duration of temporary footpath, bridleway and cycleway closures. Where closures are not required, carefully manage the interfaces of access routes and footpaths with manned staff/banksmen.</p> <p>Maintain working area/access route fencing for duration of the works</p> <p>Ensure that construction materials and soils are swept off any footpaths and cycleways.</p>	<p>No unnecessary disturbance to recreational users</p> <p>No health and safety incidents as a result of bicycle punctures</p>	Contractor	There are a number of public and permissive footpaths and bridleways, which need to be permanently or temporarily diverted during the construction of the works. Initial plans	

Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement
<b>CONSTRUCTION</b>						
		<p>Ensure that all cycle paths are free of materials that might cause punctures i.e. ensure sites are cleaned thoroughly before reopening, to avoid complaints.</p> <p>For permissive and informal footpaths, post notices for closures and diversions on the affected footpath at least 4 weeks before any diversion is implemented to give adequate notice to the public.</p> <p>Ensure Willow Walk Bridleway remains open to the public at all times, ensuring the provision of a temporary diversion at all times the existing route is closed to the public.</p> <p>Make available a footpath to the public through Seacourt Nature Reserve to gain access to Hinksey Meadow from either the Westway Bridge or from Botley Road at all times. A diversion from the existing route to the edge of the working area is acceptable.</p> <p>Provide a temporary diversion for the Devil's Backbone at all times. This must connect South Hinksey village to the existing footbridge over the railway; plan the route to minimise the length of the diversion route.</p> <p>The Contractor shall prepare and implement a site wide traffic management plan including clear demarcation of vehicle and pedestrian routes and how interactions will be dealt with. This plan shall be submitted as part of the Construction Phase Plan.</p>			<p>for each of the diversions have been discussed with Oxfordshire County Council Public Rights of Way Officer.</p> <p>The existing stone bridge on Willow Walk has a 3 tonne weight limit and shall not be used by contractor's vehicles in conjunction with the implementation of the works.</p>	

Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement
<b>CONSTRUCTION</b>						
C4	To avoid unnecessary noise disturbance and reduce noise levels to the local community	<p>Adopt Best Practicable Means (BPM) (as defined in Section 72 of the Control of Pollution Act 1974 on-site to reduce temporary noise levels arising during the construction period.</p> <p>Implement the following controls:</p> <ul style="list-style-type: none"> <li>• Ensure Public Liaison Officer is aware of any concerns from the local community;</li> <li>• Carefully select equipment, for example any compressors brought to site will be super-silenced or sound reduced models fitted with acoustic enclosures or any pneumatic tools will be fitted with silencers or mufflers, wherever practicable;</li> <li>• Properly maintain all plant and equipment and operate in accordance with manufacturers' recommendations;</li> <li>• Shut down equipment when not in use for a period longer than five minutes; and</li> <li>• Ensure that no vehicles wait or queue on public highways with engines running. Take care when unloading deliveries.</li> </ul>	No valid complaints from the local community.	Contractor		
<b>Recreation and Public Access</b>						
C5	To minimise disturbance to recreational users	Continue to consult the public, businesses and water corridor users affected by the Scheme with regard to	No valid complaints from the public	Contractor	See Transport Assessment (ES Appendix M)	



Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement
<b>CONSTRUCTION</b>						
		<p>the nature and timing of activities and access restrictions during construction.</p> <p>Maintain access to the River Thames at all times and maintain access to light craft (e.g. canoes) to other watercourses outside of the main working areas.</p> <p>Ensure that phasing of the works will not affect all access points simultaneously. Sign any alternative accesses.</p> <p>Implement mitigation measures relating to the public rights of way detailed in the CTMP (see actions PR13 and C3).</p> <p>Maintain signage adjacent to the public open spaces throughout the Scheme.</p> <p>Fence off areas of land within and adjacent to the working area to prohibit recreational users but maintain existing public access to as much land as possible.</p> <p>Open areas in winter, where practical, if this can be done safely.</p>				

Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement
<b>CONSTRUCTION</b>						
<b>Landscape and Visual Amenity</b>						
C6	To maintain visual appearance of works areas and access routes during construction.	<p>Keep working areas compact and tidy.</p> <p>Ensure temporary lighting levels and direction does not cause visual intrusion to properties.</p> <p>Store materials and machinery in identified compound areas.</p>	No valid complaints	Contractor		
C7	To ensure implementation of landscape works and protection of trees	<p>Protect trees in accordance with the Arboricultural Method Statement and Tree Protection Plans (see ES Appendix F).</p> <p>Implement all soft and hard landscape proposals in accordance with the contract documents, Landscape Specification and landscape plans.</p> <p>Ensure all soft landscape works (seeding and planting) are implemented as soon as is practicable to suit the next planting season after completion of engineering/ground works. Maintain these works throughout the remainder of the construction period and agreed establishment/maintenance period.</p>	Implementation and establishment of soft landscape works	Contractor	<p>See Arboricultural Method Statement, ES Appendix F.</p> <p>See Landscape General Arrangement Plans (ES Appendix I-6), Planting Plans and Landscape and Habitat Creation: delivery and Management Plans (EA/Gillespies 2022)</p>	

Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement
<b>CONSTRUCTION</b>						
C8	To ensure adequate biosecurity measures	Procure all plants and trees from nurseries/suppliers that have no confirmed plant disease infections and are Horticultural Trades Association (HTA) members with quality assurance certification in place.	No transmission of plant diseases as a result of the works	Contractor	All plant material supplied should be of native/local provenance.	
<b>Flora and Fauna</b>						
C9	To avoid impacts on badgers	<p>Ensure there is no obstruction to badger movements during construction, with the exception of fences around excavations (or open pipe systems) to prevent accidental injury or trapping.</p> <p>Provide an escape route in excavations consisting of a scaffold board or plank laid at a 45 degree angle.</p> <p>Adhere to all requirements of the badger licence.</p> <p>Ensure fencing is in-place to enforce an exclusion zone around any known active sett that are within the vicinity of the works.</p> <p>Point any security lights required away from setts.</p>	No harm to badgers and full compliance with the Protection of Badgers Act 1992 and W&CA	Contractor	Contractor will be provided with Badger Report and locations of badger setts prior to works.	
C10		<p>Construct a new artificial sett, under licence. The new sett is to be built in accordance with Jacobs design.</p> <p>This artificial sett will firstly provide a compensatory sett for any badger setts found during vegetation clearance that will have to be closed and/or as enhancement for the local population, and secondly provide alternative shelter for the badgers which</p>	No harm to badgers and full compliance with the Protection of Badgers Act 1992 and W&CA	Contractor	Contractor will be provided with Badger Report and locations of badger setts in proximity to the Works.	A toolbox talk will be provided to contractors prior to the commencement of works so that any new badger setts

Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement
<b>CONSTRUCTION</b>						
		<p>currently use the main sett, which will be disturbed and may need to be temporarily closed under licence.</p> <p>It is likely that a temporary sett closure licence will be required. However, this will be reviewed by Jacobs to see if a disturbance licence is more appropriate, following a review of the working area considered necessary and in particular the extent of excavations within 30m of the sett.</p> <p>If a temporary sett closure licence is sought, close the main active sett no earlier than six months after the artificial sett is complete. Do not interfere with the artificial sett during this time. No ground works may be carried out within 30m of the main sett until it has been temporarily closed.</p> <p>If a disturbance licence is obtained, works within 30m of the main sett cannot start until the licence is obtained, but do not need to wait six months after the artificial sett is complete. In this case, ground works must be identical to those described in the licence application.</p>			<p>The new artificial sett will be made as desirable as possible for the badgers, with plenty of suitable dry bedding material and supplementary feeding.</p> <p>The closure and disturbance of active badger setts is restricted to between 1 July to 30 November only.</p>	can be identified and reported.
C11	To protect aquatic invertebrates	Take appropriate measures to prevent pollution and smothering of in-channel habitats by silt. Adopt standard good practice.	Minimise harm to aquatic invertebrates	Contractor		

Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement
<b>CONSTRUCTION</b>						
C12	To protect trees, hedgerows and notable habitats/vegetation that are to be retained.	Protect trees to be retained with appropriate tree protection measures according to BS 5837:2012 Trees in relation to design, demolition and construction, and in accordance with the Arboricultural Impact Assessment (to include high visibility marker tape and temporary stakes laid out by an arboriculturist prior to vegetation clearance) and Arboricultural Method Statement.	Minimise impacts upon retained trees, hedgerows and notable habitats.	Contractor	See Arboricultural Impact Assessment and Method Statement (ES Appendix F)	
C13	To prevent spread of invasive plant species (Himalayan balsam and Japanese knotweed. Other invasive species - giant hogweed, montbretia, variegated yellow archangel, Himalayan cotoneaster, New Zealand pigmyweed, Virginia creeper and Canadian pondweed.)	Provide a toolbox talk to the Contractors with regard to the risks of spreading invasive species and their responsibilities at the start of the construction works and with regard to soil management and vegetation protection.  This talk should refer to wider biosecurity requirements in relation to all kit, plant and clothing being brought to site adhering to strict biosecurity measures.	No spread of invasive species	ECW	The amount of bare ground to be exposed on this site means it will be highly prone to invasives being brought onto site and becoming established.	
C14		Adhere to agreed management plan for dealing with invasive species.		Contractor		

Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement
<b>CONSTRUCTION</b>						
C15	To avoid impacts on amphibians	<p>If any great crested newts are found during the construction works, stop all work immediately and consult the ECW.</p> <p>If other amphibian species (common and palmate newt, frogs and toads) are found during the construction works, move these off-site to a pre-determined 'safe' hibernacula/refugia or water body.</p>	No impacts on amphibians	Contractor	<p>Consultation and advice from Natural England might also be required.</p> <p>No known great crested newts within working areas.</p>	
C16	To provide replacement nesting habitats for displaced breeding birds	Implement programme of artificial nest-box installation outside the Scheme by installing nest boxes during the first winter of the Scheme, during vegetation clearance, before the nesting season begins.	No impacts on breeding birds	Environment Agency Project Manager	Artificial nest box designs are targeted for specific species and their locations will be based on data collected through previous breeding bird surveys.	
C17	To avoid disturbance to breeding birds	If nesting birds are discovered during the construction works, set up an exclusion zone around the nest and seek the advice of the ECW.	No impacts on breeding birds and full compliance with the W&CA	Contractor		
C18	To avoid disturbance to otters and resting	Minimise removal of riverside vegetation as far as possible. Fence off any deep holes or trenches and leave escape routes in place.	Full compliance with the W&CA	Contractor	Seek advice on these aspects from EA Ecologist (Graham Scholey).	

Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement
<b>CONSTRUCTION</b>						
	sites during construction	<p>If an otter or potential otter holt/resting place is discovered during construction, cease works within 150m and seek the advice of the ECW.</p> <p>In the event of a maternal holt being identified, establish an exclusion zone of up to 150m or more, depending on bespoke advice, to prevent disturbance until breeding is complete. If the discovered holt is within the footprint of the working area, remove holt under licence, once mother and cubs are confirmed to have left naturally; otherwise maintain surveillance if the holt may be used again and may be subject to disturbance.</p> <p>Direct artificial lighting away from the river where possible, and where it will not impact people or sensitive receptors.</p> <p>Manage construction of in-river and bankside structures and works so that otter passage can be maintained overnight.</p> <p>Fence off areas of scrub during construction to cause as little disturbance as possible. The fencing will have signs that clearly mark the areas that contractors must not enter. A buffer zone of at least 2m is suggested around these areas of scrub but ensure otters can enter and leave these areas.</p>				

Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement
<b>CONSTRUCTION</b>						
		<p>Keep construction equipment, materials and portacabins away from pathways or tracks that could be used by otters to allow them to continue to move throughout and around the site.</p> <p>If an EPS licence is required then works must comply with all requirements of this licence.</p>				
C19	To avoid disturbance to water vole and resting sites during construction	<p>If a water vole burrow is discovered during construction, that had not previously been recorded, cease works within 10m and seek the advice of the ECW.</p> <p>Fence off receptor site(s) during construction if considered necessary by the ECW, with signage that clearly states contractors must not enter.</p> <p>Direct artificial lighting away from receptors site(s).</p> <p>Comply with all requirements of any licences passed from the ECW.</p>	Full compliance with the W&CA.	Contractor		ECW to make Contractors aware of when works are taking place close to/upstream of water vole receptor site(s) and spill/leak control measures reiterated.
C20	To protect any reptiles that may be using areas identified as supporting potentially suitable habitat	<p>In areas where reptiles may be active, maintain vegetation height at levels &lt;50mm using hand tools and under the supervision of an experienced ecologist to keep the habitat unsuitable for reptiles until construction activities have been completed.</p> <p>If reptiles are found to be present during the works, stop the works and seek the advice of the ECW.</p>	No harm to reptiles and full compliance with the Wildlife and Countryside Act.	Contractor		



Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement
<b>CONSTRUCTION</b>						
C21	To avoid disturbance to bats and their roosts	Shroud any lighting and direct light away from hedgerows and riparian trees. All works requiring vegetation clearance must comply with the Bat Method Statement. Where EPS licence(s) for bats are required then works must also comply with all requirements of this licence.	No injury or death of bats and no adverse impacts on conservation status of local population of bats. Full compliance with the W&CA.	Contractor	Bat surveys (ES Appendices D-11, D-12) Mitigation plan ES Appendix D-13, plus any additional requirements agreed with Natural England.	
C22		Check new installations to ensure any lighting is appropriate in key locations of known sensitivity/use by bats, as the construction of the scheme progresses.		ECW		
C23	Avoid disturbance to hedgehogs and other small mammals	<p>Ensure there is no unnecessary obstruction to small mammal movements during construction, with the exception of fences around excavations (or open pipe systems) to prevent accidental injury or trapping.</p> <p>Provide an escape route in excavations consisting of a scaffold board or plank laid at a 45 degree angle.</p> <p>Any wildlife encountered during site clearance or subsequent construction activities should be allowed to exit the site on their own, via safe routes, or gently redirected, if required.</p>				

Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement
<b>CONSTRUCTION</b>						
C24	To minimise impacts on fish	<p>Take appropriate measures to prevent pollution and smothering of in-channel habitats by silt. In line with normal Environment Agency practice, all in-channel work requiring dewatering to provide safe access for the workforce will be preceded by a fish rescue. Fish will be returned to another part of the same stream they are rescued from.</p> <p>All works that directly affect gravel beds within channels or works causing elevated sediment suspension/deposition (plus sheet piling) have been programmed to avoid the period March to July. Permission from the Environment Agency is needed for any proposal to re-programme in-channel works into the period March to July.</p>	No impacts on fish	Contractor	All in-channel works (plus breaking through from the existing channels into the new channel) needs to be carried out from August to February.	
C25	To maintain population of creeping marshwort	Mowing to continue of the vegetation in the ditch in which the plant grows within the paddock in Willow Walk Meadow, during the growing season within the construction period.	No adverse change in creeping marshwort population	Environment Agency	Retain the methods in use prior to the works.	
<b>Water and Hydromorphology</b>						
C26	To protect natural hydro- morphology	Development of a strategy for in-channel works, watercourse diversions, design of structures to reduce potential for scour, siltation and channel migration. Avoid use of temporary culverts where possible and utilise clear span temporary bridges.	No unnecessary loss of natural sediment from watercourses	Environment Agency		

Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement
<b>CONSTRUCTION</b>						
C27	To protect groundwater and surface water quality	<p>Implement standard spill/leak control measures (e.g. bunded fuel storage area, spill kits, interceptors). Install temporary drains and silt traps where required in temporary works areas.</p> <p>Mitigate the risk of silt generation from temporary stockpile areas from rainfall/flood events, and of leachate generation from excavated materials, e.g. by the use of impermeable bases, flood bunds, and temporary covering of exposed material.</p>	No pollution of ground or surface water	Contractor	Any discharge will be in accordance with Environment Agency consents, if required, to be agreed in advance.	
<b>Historic Environment</b>						
C28	To protect and mitigate archaeology and the historic environment during implementation of the works	<p>Avoid impacts on archaeological remains where possible and preserve archaeology in situ where possible.</p> <p>Carry out a programme of geoarchaeological assessment.</p> <p>Undertake a watching brief including:</p> <ul style="list-style-type: none"> <li>• Produce WSI for archaeological watching brief if a separate WSI is required;</li> <li>• Undertake an archaeological watching brief on areas identified within the WSI;</li> <li>• Undertake any required specialist analyses or dating.</li> </ul>	Minimise damage to archaeological remains and preserve archaeology by record	Contractor (through the appointed sub-contracting archaeologist).	See Cultural Heritage chapter in Environmental Statement	WSI to be approved by NEAS, Oxford City Council and Oxfordshire County Council

Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement
<b>CONSTRUCTION</b>						
<b>Sustainable Use of Land</b>						
C29	To minimise damage to soils	<p>Ensure adherence to Defra’s ‘Safeguarding our Soils’ Strategy and the Construction Code of Practice for Sustainable Use of Soils on Construction Sites (Defra, 2009), as well as our strategy document ‘Soil a Precious Resource: Our strategy for protecting, managing and restoring soil (Environment Agency, 2007).</p> <p>Adhere to the recommendations in the Soil Resources Report (ES Appendix P) with regard to soil stripping, storage and placement.</p>	No unnecessary damage to soils/land	Contractor	See Soil Resources Report and Soils (ES Appendix P)	
C30	To minimise damage to soils	Adhere to the recommendations in the Soil Resources Report and Soils and Agricultural Quality Report (ES Appendix P) with regard to landscaping and planting.	No unnecessary damage to soils/land and no increased incidence of waterlogging	Landscape Sub-contractor	See Soil Resources Report and Soils and Agricultural Quality Report (LRA 2018)	
C31	To manage soil contamination risks	<p>Follow standard practice including:</p> <ul style="list-style-type: none"> <li>• Employment of a health and safety plan for any workers likely to come into physical contact with contaminated soils, gases or vapours during the construction phase.</li> <li>• Use of measures to mitigate dust migration risks from exposed soils and stockpile areas (e.g. tarpaulins, dust suppression sprays and/or siting of any contaminated/odorous stockpiles</li> </ul>	No negative effects on soil or land quality	Contractor		

Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement
<b>CONSTRUCTION</b>						
		<p>away from residential areas).</p> <ul style="list-style-type: none"> <li>• Storage of excavated soils on low permeability ground or pads with suitable temporary drainage/bunding to prevent risk of wash-off of stockpiled soils by rain or flood water; and/or leaching into the ground.</li> <li>• Adoption of risk-based human health screening values/controlled waters remedial target values to determine appropriate emplacement locations for any re-use of materials within the project boundary.</li> <li>• Construction phase monitoring of soil gas levels where there is a significant risk of changing existing soil gas migration pathways e.g in landfill areas.</li> <li>• Appropriate design of a capping layer or seeding of any bare soils exposed at the end of the earthworks phase to reduce potential exposure pathways.</li> <li>• Validation of the remediation strategy.</li> </ul>				

Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement
<b>CONSTRUCTION</b>						
C32	To minimise damage to soils	<p>Loosen any subsoils that have been unavoidably compacted during the construction works, before any topsoil is spread on them.</p> <p>Ensure that any areas outside of the Scheme area (i.e. not within the footprint of the Scheme or adjacent working areas) are not trafficked by construction vehicles.</p> <p>Store stripped topsoil in separate resource bunds to an approximate maximum height of 2m high. These bunds will be kept grassed and free from construction traffic until required for re-use.</p>	No unnecessary damage to soils/land	Contractor		
<b>Air Quality</b>						
C33	To minimise air pollution	<p>Operate EURO VI vehicles which are expected to have significantly lower emissions of NOX, and to agree with the Highways Authorities, and implement, a Construction Traffic Management Plan.</p> <p>Implement the CEMP, which will include the following measures:</p>	No air pollution increases that are detrimental to health	Contractor	See Air Quality chapter of Environmental Statement for sensitive receptors	
		<ul style="list-style-type: none"> <li>• Locate machinery and dust causing activities away from sensitive receptors where feasible;</li> <li>• Regularly undertake visual inspections to determine whether there are any significant dust episodes</li> <li>• Ensure adequate water supply on site for dust</li> </ul>				

Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement
<b>CONSTRUCTION</b>						
		<p>suppression, as and when required.</p> <ul style="list-style-type: none"> <li>• All vehicles to switch off engines when not in use (i.e. no idling of vehicles);</li> <li>• Effective vehicle cleaning and specific wheel-washing on leaving the site and damping down of haul routes, where there is a potential for carrying dust or mud off the site;</li> <li>• Cover all loads entering and leaving the site;</li> <li>• On-road vehicles to comply to regulated emission standards;</li> <li>• Minimise movement of construction traffic around the site;</li> <li>• Impose and signpost maximum speed limits within the construction areas; and</li> <li>• Regularly inspect haul routes for integrity and undertake repairs as appropriate.</li> <li>• Ensure the disposal of any run-off water from dust suppression activities, is in accordance with legal requirements;</li> <li>• Maintain all dust control equipment and record any maintenance activities;</li> <li>• Avoid double handling of material where possible;</li> <li>• Use water as a dust suppressant where required;</li> <li>• Ensure the mixing of cement, and similar materials takes place in enclosed areas;</li> </ul>				

Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement
<b>CONSTRUCTION</b>						
		<ul style="list-style-type: none"> <li>• Ensure slopes on stockpiles are no steeper than the natural angle of repose;</li> <li>• Stockpiles should be covered and located away from sensitive receptors where possible.</li> <li>• Avoid the circulation of construction vehicles during traffic peak hours to minimise the risk of congestion.</li> </ul>				
<b>Traffic and Transport</b>						
C34	To minimise traffic disruption	Continue consultation with the Highways Authority and adhere to requirements of Traffic Assessment (Appendix M of the Environmental Statement).	No complaints about traffic relating to the works.	Contractor	See Traffic Assessment (Appendix M of the Environmental Statement)	



**Table 4: Environmental Action Plan: POST-CONSTRUCTION**

Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement
<b>POST-CONSTRUCTION</b>						
<b>Local community</b>						
PC1	To minimise impacts on local community	Maintain role of Public Liaison Officer during reinstatement of Scheme	No complaints from local community	Contractor		
<b>Recreation and public access</b>						
PC2	To minimise impacts on public rights of way	Ensure that re-opened public rights of way are adequately reinstated  Install signs to indicate which parts of the permanent maintenance access track are permissively open to pedestrians.	Return all disturbed ground to pre-construction condition.	Contractor		
PC3	To offset losses of allotment gardens	Prepare new allotment gardens to the west of the existing allotments at Bullstake Close in accordance with landowner agreement and Landscape Management Plans.	No complaints from users of the allotment gardens	Environment Agency Project Manager		
<b>Landscape and visual amenity</b>						
PC4	To reduce visual disturbance	Replant woodland areas, trees and new MG4a habitats in accordance with the Landscape and Habitat Creation: Delivery and Management Plans, Planting Plans, and Landscape Specification.	No valid complaints from the public  Minimal loss of key floral species and	Contractor		Ensure action is included in the contract documents.

Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement
<b>POST-CONSTRUCTION</b>						
		Return disturbed habitats in temporary working areas to their original condition (or better) as soon as possible, where landscape master plans and planting plans do not show site-specific planting proposals.	colonization by invasive species			Refer to Landscape General Arrangement Plans, Landscape and Habitat Creation: delivery and Management Plans and Planting Plans (Gillespies 2022)  Landscape Specification (Gillespies 2022)
PC5		Ensure planting in areas intended to have public access, including Kendall Copse, is laid out in a way that facilitates access.	No valid complaint	Environment Agency Project Manager		

Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement
<b>POST-CONSTRUCTION</b>						
<b>Flora and fauna</b>						
PC6	To minimise impact on rare/key species	<p>As soon as construction works are completed, disturbed habitats in temporary working areas will be returned to their original condition or better as quickly as possible to minimise loss of key species.</p> <p>Re-introduce whorled water-milfoil to the pond at Kennington Pit if needed and monitor plant growth.</p> <p>If groundwater levels at Willow Walk Meadow are found to have been lowered by the Scheme upon completion, deepen and widen the ditch to provide the creeping marshwort with sufficiently-wet ground.</p>	Return all disturbed habitats to pre-construction condition.	Contractor	See mitigation strategies for creeping marshwort and whorled water-milfoil	
PC7	To mitigate the loss of lowland meadows (Hinksey Meadow)	Create 17.8ha of new meadow (as shown on the Landscape Masterplan). Plant the remainder of the new meadow, where no translocated turf is laid, with seeds of meadow grasses and wild flowers taken from MG4a meadows, by seeding and/or spreading of green hay. Implement management agreement for the new meadow to ensure it is managed as meadow and mown in late summer.	Replace all lowland meadows destroyed due to construction	<p>Landscape Subcontractor (for first 12 months).</p> <p>Environment Agency to appoint / reappoint landscape subcontractor for maintenance years 2 to 5.</p>	Annual hay cuts required at meadow sites	

Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement
<b>POST-CONSTRUCTION</b>						
				Environment Agency to implement long term plan described in the Landscape and Habitat Management Plan and Schedules (funding available years 6 to 10)		
PC8	To monitor impacts of scheme on ecology	Carry out ecological and mitigation monitoring in line with any protected species licensing provisions, and the Landscape and Ecological Management Plans.  Implement a Monitoring Plan, which is being developed in line with Table 17.1 Provisional Monitoring Schedule in the Environmental Statement.	No loss or change in distribution of habitat or population of species.	Environment Agency Project Manager	See Table 17.1 Monitoring Schedule in the Environmental Statement	
PC9	To avoid the spread of invasive floral species	Continue monitoring, and treatment as necessary, of invasive plant species within and immediately adjacent to the Scheme area.	No spread of invasive species and compliance with legislation	Environment Agency Project Manager		

Action Ref	Objective	Action	Target	Responsible party	Comments/ observations	Further action requirement
<b>POST-CONSTRUCTION</b>						
<b>Water and hydromorphology</b>						
PC10	To monitor changes in groundwater levels	Continue to monitor loggers installed during the design stage of the Scheme.  Carry out additional groundwater monitoring during the initial operational phases of the Scheme (e.g. for the first five years), particularly in areas of environmental sensitivity such as the MG4a grassland at Hinksey Meadows.	Identification of any impacts of changing groundwater levels on important ecological habitats to enable remedial action.	Environment Agency Project Manager		
<b>Historic Environment</b>						
PC11	To protect and promote archaeology and the historic environment	Carry out post-excavation assessment and reporting after mitigation area has been completed. This will include: <ul style="list-style-type: none"> <li>• Processing and analysis of finds and samples;</li> <li>• Full reporting;</li> <li>• Site archive prepared and deposited with the Oxfordshire County Museums Service;</li> <li>• Publication of the archaeological results;</li> <li>• Public dissemination</li> </ul>	Preserve archaeology by record and public dissemination	Contractor (through the appointed sub-contracting archaeologist).	See Cultural Heritage chapter in Environmental Statement  See WI 2024 'Archaeological Works' of Works Information	Reporting and publication to be approved by NEAS, Oxford City Council, Oxfordshire County Council and Historic England.

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