

A46 Newark Bypass

TR010065/7.60

7.60 Environmental Mitiga- tion Signposting Document

APFP Regulation 5(2)(a)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed Forms and
Procedure) Regulations 2009

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Planning Act 2008

**The Infrastructure Planning
(Applications: Prescribed Forms
and Procedure) Regulations 2009**

A46 Newark Bypass

Development Consent Order 202[x]

7.37 CUMULATIVE EFFECTS ASSESSMENT TECHNICAL NOTE

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1 Environmental mitigation signposting document

This document has been prepared at the request of the Examining Authority during Issue Specific Hearing 1. The document provides a response to Action Item 3 for the Applicant to provide a “Detailed sign-posting document for the Pre-Commencement Plan to capture relevant post commencement plans.”

Table 1 below sets out each of the commitments included in the Register of Environmental Actions and Commitments (Table 3-2) from the First Iteration Environmental Management Plan [REP3-023]. The final column of Table 1 below signposts to where the relevant commitments are covered within the updated Pre-Commencement Plan [APP-188] submitted at Deadline 4. Where the commitment is not relevant to the pre-commencement activities this has been marked as N/A.

It should be noted that any elements of the authorised development that would not be considered ‘pre-commencement works’ must not be carried out until the Second Iteration Environmental Management Plan (Second Iteration EMP) has been approved by the Secretary of State in accordance with Requirement 3 of the draft Development Consent Order [REP3-003]. At this point the Pre-Commencement Plan would fall away and be replaced by the various detailed management plans secured in the Second Iteration EMP.

Table 1: Register of environmental actions and commitments signposted against the Pre-commencement Plan

Information from the REAC			Relevant Section of Pre-commencement Plan (where applicable)
REAC ID	Objective	Action or commitment	
GENERAL			
G1	Ensure necessary environmental mitigation is appropriately detailed and implemented	<p>A Second Iteration EMP will be prepared by the PC in advance of construction detailing necessary measures which must be complied with pre-construction and during construction of the Scheme. The Second Iteration EMP will follow the principles and requirements detailed in the First Iteration EMP to ensure necessary mitigation measures required in the ES are complied with and implemented.</p> <p>The Second Iteration EMP will provide and adhere to a number of supporting management plans and method statements as detailed in Appendix B and C of this First Iteration EMP.</p>	N/A
G2	Hours of working	<p>Core construction working hours will be between 07.00 and 18.00 on weekdays and from 08.00 to 14.00 on Saturdays.</p> <p>Other than in the case of the exceptions described below, and in the case of emergencies, the PC would adhere to these core working hours as far as is reasonably practicable.</p> <p>Exceptions to core hours include the following:</p> <ul style="list-style-type: none"> • online sections of the Scheme would require night-time working to facilitate traffic management installation and removal • the installation of bridge beams to the new bridge structures • removal of the existing signal gantry on the A46 between the Friendly Framer and Winthorpe roundabouts and the installation of new gantry structures at the Winthorpe roundabout and north of the Winthorpe roundabout • tie-in of new road surfacing into existing and installation of road markings • installation of signs and streetlights where works are adjacent to live traffic • abnormal load deliveries, such as bridge beams or large items of plant, that cannot travel on the road network within core working hours • construction of the Nether Lock Rail bridge over the ECML and the works over the Nottingham to Lincoln line would require working in proximity to the railway line. The timings of the possessions would be dictated by Network Rail's 'Rules of the Route' requirements, these being the rules agreed with train operators under which speed restrictions or temporary line closures can be imposed. Where practicable, railway possessions would be used to install safety systems (for example protection decks and railway protection barriers) to enable a greater amount of the construction activities to be undertaken during core hours. • security • maintenance of plant and equipment requiring 24/7 operation such as dewatering pumps • certain other specific construction activities would require extended working hours for reasons of engineering practicability. These activities include, but are not limited to, major concrete pours and piling works • environmental and engineering surveys may be carried out outside of core working hours <p>Outside the core hours and days specified above, the Applicant will consult with the local planning authority prior to carrying out certain operations such as earthworks which are season and weather dependent.</p> <p>Any other work required to be undertaken outside of core hours (not including repairs or maintenance) would be agreed with the relevant local authority prior to undertaking the works. In addition any Section 61 of the Control of Pollution Act 1974 consents will be obtained where required.</p>	1.1.7 – 1.1.8
G3	To ensure environmental mitigation is implemented and functions as expected in the ES	The environmental detailed design for biodiversity, landscape and road drainage and the water environment will follow the principles of Figure 2.3 (Environmental Masterplan) of the ES Figures [AS-026] and accord with the Landscape and Ecology Management Plan (LEMP).	N/A
G4	To reduce the probability of the structures being defaced by anti-social activities, enabling a better legacy for the Scheme.	Anti-graffiti coating would be applied up to a height of 2.4 metres above ground level.	N/A
AIR QUALITY			
AQ1	To limit and control emissions and dust exposure and dispersal during construction.	<p>Works will be carried out in accordance with the best practicable means, as described in Section 79 (9) of the Environmental Protection Act 1990 (as set out in the Statement Relating to Statutory Nuisance [APP-186]), to reduce dust exposure and dispersal which may impact upon air quality. This will include dust suppression measures such as:</p> <ul style="list-style-type: none"> • Avoid double handling of materials. • Minimise height of stockpiles and profile to minimise wind-blown dust emissions and risk of pile collapse. • Locate stockpiles out of the wind (or screen, cover, seed or fence) to minimise the potential for dust generation. 	2.4.30, 2.5.21, 2.6.10 - 2.6.11 and 3.2.1 - 3.2.5

Information from the REAC			Relevant Section of Pre-commencement Plan (where applicable)
REAC ID	Objective	Action or commitment	
		<ul style="list-style-type: none"> •Ensure that all vehicles with open loads of potential dusty materials are securely sheeted or enclosed. •Provide a means of removing mud and other debris from wheels and chassis of vehicles leaving the site. This may involve a simple coarse gravel running surface or jet wash, or in the case of a heavily used exit point, wheel washers. •Maintain a low speed limit on site to prevent the generation of dust by fast moving vehicles. •Damp down surfaces in dry conditions. •Water to be sprayed during cutting/grinding operations. •All vehicle engines and plant motors to be switched off when not in use. •High dust generating activities within site compounds should be located as far away from nearby receptors as possible. 	
CULTURAL HERITAGE			
CH1	To minimise adverse effects on archaeological assets during construction and provide enhancement where possible through public outreach	An Archaeological Management Plan (AMP) [REP2-062] will be updated after each phase of archaeological works to ensure best practice and limit impacts on cultural heritage assets. This will include building recording for the grade II Causeway Arches 500m north west of level crossing (MM228). The final phase (Phase 3) of the AMP will be completed following consent and prior to and during construction. This phase will include an Archaeological Mitigation Strategy, including the details of the excavation and recording of archaeological assets identified during previous investigations. The Phase 3 AMP will outline the public outreach opportunities where feasible. These will be detailed within the WSI's produced for the archaeological mitigation works.	3.13.1 – 3.13.2
CH2	Use of structural monitoring systems to vulnerable assets before, during and after the construction phase.	Structural monitoring will be required before, during and after construction at grade II* listed Concrete Footbridge across River Trent (MM038), grade II listed Farndon Windmill (MM139), grade II listed, and grade II listed Causeway Arches 500 meters north-west of level crossing (MM228) to ensure any vibrations from construction machinery do not affect the structural integrity of these assets. The buffer zones required for the structural monitoring will be defined by a structural engineer before works start in these areas. A structural condition survey and Level 2/3 building recording will be undertaken specifically for Causeway Arches 500m north west of level crossing (MM228), prior to the commencement of works in order to inform a construction methodology and design specification for the rebuilt element of arches.	N/A
CH3	To minimise adverse effects on setting of heritage assets during construction	The use of temporary noise barrier to reduce degradation of setting and/or maintenance of access routes to a heritage asset to maintain its viability during construction. This should be provided at grade II listed Farndon Windmill (MM139), grade II listed Lowwood (MM053), grade II listed Langford Hall (MM026) and the designated Conservation Area at Winthorpe (MM432).	N/A
CH4	To minimise adverse effects on setting of heritage assets during construction	Installation of physical protection measures such as fencing and hoarding for known heritage assets in close proximity to the Scheme including, but not limited to, areas of preservation in situ south of Farndon roundabout (MM503), the early medieval settlement at Winthorpe (MM876), and the Scheduled monument Civil War redoubt 550m south east of Valley Farm (MM007) in close proximity to Cattle Market Roundabout and listed buildings Causeway Arches (MM228) and Farndon Windmill (MM139) As identified in section 6.10 in the ES [APP-050].	N/A
CH5	Use of sensitive landscape design and planting to provide visual screening and conserve the setting of heritage assets where appropriate.	The landscape design for the Scheme includes new and replacement planting which would reflect the character of the local area and help screen heritage assets from the road network. This includes locations of planting to be used and different species. The design will be developed further at detailed design which will reflect Figure 2.3 (Environmental Masterplan) of the ES Figures [AS-026].	N/A
CH6	Avoidance, preservation by record, in the case of archaeological remains.	A WSI will be prepared in consultation with the local authorities. The WSI should include any mitigation or recording identified as a result of the evaluation work. Archaeological works will be undertaken as detailed in the WSI which may take the form of archaeological excavation and / or strip map and/ or archaeological monitoring. A report will be produced and published for the results of the mitigation; these will require approval from the local authority archaeological advisor.	1.1.6, 1.2.2, 3.13.1
CH7	To identify and record any archaeological assets	Provision of a Protocol of Archaeological Discoveries and tool box talks for construction workers and operatives to highlight reporting procedures to be followed, should archaeological deposits be encountered during the works.	3.13.1 – 3.13.2
CH8	To limit impacts and provide enhancement where possible for heritage assets	Continued multi disciplinary consultation with design, noise and landscape teams throughout the design process to work to limit impacts, provide enhancements where possible (subject to funding and any other consents being required being secured) and preserve in situ heritage assets across the Scheme.	N/A
CH9	To minimise impacts on Winthorpe Conservation Area and Lowwood Listed Building	Landscape bunds will be provided to the south east of Winthorpe Conservation area to mitigate against noise impacts resulting from the Scheme. Planting will be provided on these bunds to minimise visual impacts associated with this. Planting will also be provided to the west of Winthorpe Conservation area and Lowwood towards the existing A1 to provide visual screening from the new road. Noise barriers and low noise road surfacing will be also be provided to minimise noise impacts upon Lowwood and Winthorpe Conservation area.	N/A
CH10	To minimise adverse effects on the heritage value of Causeway Arches 500 meters north-west of level crossing (MM228)	The section of Causeway Arches 500 meters north-west of level crossing (MM228) to be demolished will be rebuilt in an appropriate and sensitive manner and materials, the details of which will be subject to further consultation with stakeholders.	N/A
LANDSCAPE AND VISUAL			
L1	To limit landscape and visual	The following mitigation measures to be undertaken to reduce visual intrusion	2.1.3 – 2.1.5,

Information from the REAC			Relevant Section of Pre-commencement Plan (where applicable)
REAC ID	Objective	Action or commitment	
	effects during construction.	and impacts upon the landscape throughout construction: <ul style="list-style-type: none"> Keep a well ordered and tidy site, including keeping stockpiles to a minimum, with delivery of goods on an as needed basis. Temporary offices and welfare facilities would be a recessive colour to blend in with local surroundings. This is particularly the case in more rural areas away from the urban edge of Newark. Boundary fencing or timber hoarding (2 metres in height) would be erected around all compounds and material storage areas. Constructing screening mounds, where they are proposed as part of the permanent works, as early as is practicable to provide screening to the construction work. Limiting works to core hours in the most part, with any night works to be kept to a minimum where practicable. Exceptions to these core hours are detailed in G2 above. Lighting would be kept to the minimum luminosity necessary and use low energy consumption fittings. Where appropriate, lighting would be activated by motion sensors to prevent unnecessary usage. The main site compound would be occupied at all times for the security of the plant, equipment and materials within it. As such, the main site compound would be lit as required during hours of darkness. Lighting would be directional, and positioned sympathetically, to minimise light spill and disturbance for highly sensitive receptors. Construction lighting will be provided as detailed in Section 2.6 of Chapter 2 (The Scheme) of the ES [APP-046]. Restoration of land used temporarily to construct the Scheme, as soon as practicable. 	2.1.6b
L2	To limit the impact of construction on existing trees and vegetation to be retained.	During construction existing trees and vegetation to be retained are to be protected with fencing, ground protection, and arboricultural supervision, where specified within Table 4-2 of Appendix 7.4 (Arboricultural Impact Assessment) of the ES Appendices [APP-140 and AS-086 to AS-089]. An Outline Arboricultural Method Statement (AMS) has been prepared in Chapter 5 of the Arboricultural Impact Assessment. This would be developed into a full AMS ahead of construction alongside the Second Iteration EMP which will include Table 4-2, and not be limited to the following details: <ul style="list-style-type: none"> Retention and avoidance of impact upon existing trees and vegetation wherever possible, including the sensitive consideration of priority habitats, trees protected by TPOs and other veteran and notable trees within and adjacent to the works boundary. Protecting existing trees and vegetation to be retained with protective fencing and ground protection, where deemed necessary. Check the robustness and positioning of tree protection measures, and that no materials or plant are stored within the tree protection fencing. Regular inspections of protection measures and supervision of any works within the RPA by a qualified arboriculturist. Results of inspections and supervision works to be made available to the Local Authority. 	2.2.3, 2.5.9, 3.5.7, 3.5.25 – 3.5.31
L3	Proposed planting matures to provide effective landscape and visual mitigation as well as successful habitat creation.	New and replacement native planting which reflects the local landscape character, including the use of species listed in the Newark and Sherwood Landscape Character Assessment SPD as appropriate and biodiversity needs would be provided as detailed in Figure 2.3 (Environmental Masterplan) of the ES Figures [AS-026].	N/A
L4	To ensure that existing vegetation including field boundaries and highways planting remains intact wherever possible, and wildlife corridors are not severed.	Hedgerows and linear belts of vegetation along the highway boundary would be retained and/or strengthened wherever possible. Where reasonably possible, enhancement of existing hedgerows within the Order Limits will be undertaken by means of, for example, coppicing, hedge laying or planting up gaps with native climate resilient species. Where retention is not possible, new planting would be sought to restore continuity of existing vegetation as set out in Figure 2.3 (Environmental Masterplan) of the ES Figures [AS-026] and the LEMP to be developed as part of the Second Iteration EMP. This would include, but not be limited to, areas of species rich grassland, hedgerows, hedgerows with trees, linear belts of shrubs and trees and woodland, as well as wetland planting of drainage features and habitat creation at Farndon East and West Floodplain Compensation Areas.	N/A
L5	Mitigating landscape and visual impacts during operation.	Landscape works undertaken should be maintained to ensure successful establishment of the environmental design. Maintenance should be undertaken in accordance with the Series 3000 Landscape and Ecology specification appendices and LEMP (to be produced) to ensure the establishment and continued growth of new plant stock to ensure mitigation planting meets its objectives as presented in Figure 2.3 (Environmental Masterplan) of the ES Figures [AS-026].	N/A
L6	Monitoring landscape requirements during construction and operation	The PC Environmental Manager would ensure commitments L1-L5 above are complied with. Notably in construction including: <ul style="list-style-type: none"> Ensuring tree protection barriers and ground protection are installed correctly Angle and direction of night time lighting is not directly focused on residential receptors Soil is stored correctly with stockpiling in accordance with the Outline Soil Management Plan (see Appendix B of this First Iteration EMP) In operation, monitoring to review the success and establishment of planting would be undertaken in the scope set out in the Series 3000 and LEMP.	2.1.6b, 2.2.7, 2.5.14, 3.2.2, 3.5.5, 3.5.21, 3.5.25 – 3.5.31, 3.6.12 – 3.6.25
L7	Where reasonably possible to provide screening planting and mitigate visual impacts at the earliest possible opportunity	The PC will explore opportunities to provide advanced planting where reasonably possible.	3.5.24

Information from the REAC			Relevant Section of Pre-commencement Plan (where applicable)
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L8	To mitigate the introduction of pests and diseases from planting stock.	All plants supplied shall comply with BS 3936: Parts 1 to 10 as relevant, BS 8545, the National Plant Specification published by the Horticultural Trades Association and with prevailing UK policies and regulations relating to plant health and biosecurity.	3.5.24
BIODIVERSITY			
B1	Protection of habitats and protected species during construction	<p>The following general measures or principles will be adhered to for biodiversity during construction:</p> <ul style="list-style-type: none"> • an Ecological Clerk of Works (EcoW) will be employed to provide advice and monitor the works' adherence to the Second Iteration EMP and construction mitigation measures • a pre-construction search by the ECoW prior to vegetation clearance/brush removal to check for notable faunal species such as hedgehog and toad resting places • toolbox talks on protected species and control of INNS to be delivered prior to construction activities • Phased grass cutting/vegetation clearance and directional clearance • a Pollution Prevention Plan will be prepared as detailed in commitments RDWE2 and RDWE3 of this First Iteration EMP. Techniques could include the use of oil booms on the River Trent during construction of the new outfall. • outfall construction (integrated into an existing headwall) on the River Trent (adjacent to Nether Lock Weir) to be undertaken between mid-June and October, avoiding periods of flooding. This will allow higher winter flows to wash silt through the system before the next coarse fish spawning season (March to mid-June). • Site drainage (including site compounds and material storage areas) will be designed to connect to existing road/mains drainage network, and not directly discharged to the environment. • Best practice methodology for the correct storage and disposal of wastewater and pollutants, the establishment of dedicated plant and wheel washing areas at least 10 metres from any watercourse or surface water drain, collection of runoff water in sumps, and the recycle and reuse of water where possible. • use of best practice measures set out in the LEMP (to be produced as part of the Second Iteration EMP) to minimise impacts on mammals such as covering excavations over-night, or securing mammals ladders within excavations. • Night working will be restricted along the majority of the working width along the River Trent to minimise the requirement for artificial lighting, thereby avoiding disturbance effects of artificial lighting on sensitive ecological features. • Where this is not possible, static, task lighting with cowls will direct light towards the areas of works and avoid direct illumination of the River Trent. The only exception to this would be during crane slewing, where the lighting on the boom may cast across the water before coming to rest on the beam lift, which would be temporary and short-term (taking place over four 30-minute intervals during a night shift). • Use suitable piling equipment to minimise noise and vibration and use a slow start-up, where possible, for all night works and sheet piling adjacent to the River Trent. • Use of screening, dust suppression measures, vegetating or covering of spoil heaps to minimise dust exposure and dispersal, with focus on areas in the vicinity of LWS. • The Second Iteration EMP will detail the working methodology for protected and notable species during construction. • Environmental protection best practice guidelines will be followed, such as Construction Industry Research and Information Association (CIRIA) C741 – Environmental Good Practice on Site (4th Edition) (CIRIA, 2015a), CIRIA C532 – Control of Water Pollution from Construction Sites (CIRIA, 2001) and CIRIA C648 – Control of water pollution from linear construction projects (CIRIA, 2006). <p>Where necessary, protected species licences will be applied for and a Method Statement will be provided in the licence package which will need to be adhered to.</p>	2.2.17, 2.2.18, 2.2.24, 2.6.9, 2.3.19, 2.3.20, 2.4.29, 2.4.30, 2.5.18, 2.5.21, 2.6.10, 2.6.11, 2.6.17, 2.6.18, 3.2.1 – 3.2.5, 3.5.2, 3.5.5, 3.5.10, 3.5.13, 3.5.20, 3.5.21, 3.5.23, 3.5.34, 3.6.12 – 3.6.25, 3.8.53, 3.8.55, 3.8.56
B2	Protection of bats	<p>A bat mitigation licence will be obtained from Natural England prior to the demolition of bat building F004.</p> <p>The method statement, as part of the bat mitigation licence application, will detail necessary mitigation for bats including:</p> <ul style="list-style-type: none"> • Bat roosting features identified within one building which will be demolished (building F004) to facilitate the Scheme will be checked by a suitably qualified bat ecologist (Level 2 Natural England Licence or equivalent) via torchlight and/or endoscopic inspection prior to destruction of the building. • Where features cannot be fully inspected, the bat licensed ecologist will soft-strip materials, inspecting the feature periodically after each removal of material. • Soft stripping of building F004 (daytime summer roost) will be undertaken in the daytime in March to April and/or October to November inclusive, where possible and subject to weather conditions, during the transitional period (avoiding the core summer season and bat hibernation period) to reduce the risk of injuring or killing a bat. • Should no roosts be identified as being present within the building following the inspection, any suitable roosting features would be made unsuitable. This could be achieved by either soft-striping materials from the building or in 	2.6.9, 3.5.11 – 3.5.13, 3.5.15 – 3.5.17, 3.5.19

Information from the REAC			Relevant Section of Pre-commencement Plan (where applicable)
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		<p>some cases it may be more appropriate to back-fill accessible crevices with wet newspaper, wet hay or expanding foam to eliminate the risk of bats using features identified within the building prior to it being demolished. This method of backfilling will not be undertaken on features that cannot be fully inspected.</p> <ul style="list-style-type: none"> The installation of one bat box should be located close to bat building F004, in retained adjacent semi-mature woodland or on posts, whilst trees mature, but beyond 100m from areas of heavy construction (e.g. piling). Should a bat be found during soft-stripping of this buildings, the suitably qualified bat ecologist (Level 2 Natural England Licence or equivalent) will rehome any individuals into the bat box. Indicative locations for provision of bat boxes are detailed on Figure 2.3 (Environmental Masterplan) of the ES Figures [AS-026] and the bat licence application. <p>In addition to embedded mitigation such as directional lighting (detailed in Chapter 2 (The Scheme) of the ES [APP-046]), the following mitigation, not associated with the bat licence application, will be applied across the Scheme.</p> <ul style="list-style-type: none"> To mitigate disturbance to bat roosts in bat building F054, the farmyard off Kelham Road will not be used to store materials, receive deliveries, or have vehicles associated with the Scheme left idling. In addition to embedded mitigation such as directional lighting (detailed in Chapter 2 (The Scheme) of the ES [APP-046]), the use of task lighting with cowls to prevent illumination of the roost access point or associated access flight lines during any unavoidable night works will mitigate lighting disturbance to the bat roost present in building F057. This is also applicable to roosts in building F010 and F013 and trees F123, F210, F213 and F225 and the assumed to be present roosts in buildings F002, F005, F009, F034, F062, F063 and F064. All trees to be felled for the Scheme with potential for a bat roost would be re-inspected for roosting bats prior to felling. This would comprise aerial climb inspection surveys with endoscopes. Where a feature cannot be fully inspected (e.g. tree unsafe to climb), the tree would be soft-felled where the licensed ecologist can undertake the inspection at ground level. Felling of trees with hibernation potential will be undertaken outside of the hibernation period (i.e., avoid November – March, inclusive) or otherwise, features will be inspected by a licensed surveyor prior to back-filling accessible crevices on trees. If an inspection prior to tree felling confirms a bat roost, works would need to cease and Natural England would need to be consulted, as a bat mitigation licence would need to be applied for. This could result in the potential provision of further bat boxes in retained adjacent semi-mature woodland or on posts whilst trees mature. The number of bat boxes will depend on the number and type(s) of roosts lost and the species using those roosts. In addition to one mitigation bat box prior to soft-stripping of building F004, further bat boxes will be installed in suitably mature trees or on posts in consultation with Natural England to provide alternative roosting opportunities to compensate for the loss of suitable bat roosting features. Natural England have been consulted in regard to the proposed ratio of bat boxes to suitable roosting features lost (as detailed in Chapter 8 (Biodiversity) of the ES [APP-052]). Indicative locations for provision of bat boxes are detailed on Figure 2.3 (Environmental Masterplan) of the ES Figures [AS-026]. 	
B3	Protection of otter	<p>Based on this survey data and the implementation of embedded mitigation and measures (such as the restriction of night working, where possible) detailed in B1 of this table to mitigate disturbance, a licence will not be required.</p> <p>Passage would be maintained along commuting routes (e.g. River Trent) during construction e.g. oil booms would be positioned so they do not act as a barrier to otter movement.</p> <p>Should otter or evidence of otter be observed within or adjacent to the Order Limits within the zone of influence (Zol), works must stop and the Scheme ecologist contacted to assess a suitable working methodology for works to proceed without committing a wildlife offence.</p>	3.5.13, 3.5.21
B4	Protection of aquatic habitats Contributing to compensation for loss of non priority habitats	<p>Pond creation within the Kelham and Averham FCA (within the Order Limits) will be required to compensate for the loss of an existing pond within this FCA (as detailed indicatively on Figure 2.3 (Environmental Masterplan) of the ES Figures [AS-026].</p> <p>Implement the INNS Management Plan (see B10) during construction to manage and prevent the spread of INNS from the invasive species within the working areas.</p> <p>Creation of the Farndon West wetlands and planting the borrow pits in Farndon East to improve biodiversity of the lake, will also be beneficial by increasing the availability of aquatic habitat (as detailed indicatively on Figure 2.3 (Environmental Masterplan) of the ES Figures [AS-026].</p>	3.5.33 – 3.5.34, 3.8.61
B5	Protection of water vole	<p>Based on current water vole field sign data (three water vole droppings recorded in a single location along Old Trent Dyke, 135 metres from the Order Limits, beyond the zone of influence), there is no need for a water vole mitigation licence (A11). As water vole are a mobile species, completion of pre-commencement monitoring surveys will be undertaken prior to vegetation clearance along Old Trent Dyke, (as water vole field signs have been recorded outside of the Order</p>	3.5.12 – 3.5.13

Information from the REAC			Relevant Section of Pre-commencement Plan (where applicable)
REAC ID	Objective	Action or commitment	
		<p>Limits). Pre-commencement water vole surveys must be undertaken between 15 February and September end so that should water vole be present, displacement can be undertaken between the period 15 February to 15 April inclusive or between 15 September and 31 October inclusive by an ECoW in line with the conditions of a class licence (CL31).</p> <p>No subsequent attempt at displacement of water voles can be undertaken within the unaffected adjacent habitat for a period of 12 months. Displacement can only be undertaken along a continuous length of 50 metres across both banks.</p> <p>A suitably experienced water vole ecologist will undertake monitoring of areas both sides of culverts (where it is safe to do so) for five years post construction. This will take the form of annual field sign surveys during late summer/ autumn. Further monitoring using remote cameras could be used, where possible, over a period of four weeks during early spring and a further four weeks during late summer/autumn.</p>	
B6	Protection of badger	<p>Based on survey data collected to date, a development licence from Natural England is not required for closure(s) of any badger setts. However, pre-construction monitoring surveys will be required in advance of construction to confirm this. Timings are detailed in the following paragraphs below and should commence prior to construction and following DCO consent.</p> <p>Prior to construction, any identified burrows that are of a size and shape to support use by badgers within 30 metres of works that have potential to damage, destroy or obstruct a burrow or have the potential to disturb a badger within a sett, will be monitored for 21 consecutive days. This could include such methods such as trail cameras, monitoring tracks in sand, or 'sett sticking' to ascertain whether the burrows are currently being used by badgers (i.e. an active sett). If no field signs are recorded during this monitoring period, then a one-way gate will be installed to each entrance, under supervision of a suitably experienced ecologist. Exclusion can be undertaken at any point in the year on disused 'setts' (technically considered a mammal burrow if it is not in use by a badger).</p> <p>Badger will be permanently excluded from one 'sett' to be lost under the footprint of the Scheme (sett F001) and temporarily excluded for the duration of construction from one 'sett' that will only be subjected to disturbance (F002), both of which are currently inactive. If a large burrow within 30 metres of works that have potential to damage, destroy or obstruct a burrow or have the potential to disturb a badger within a sett, is found to be used by badger during pre-construction surveys or during construction, then a licence would need to be applied for via Natural England 'to interfere with a badger sett for the purpose of development' (A24). This would permit obstructing sett entrances by means of one-way gates, followed by the destruction of a vacant sett. If a one-way badger exclusion gate is required prior to destruction of a sett, it would be installed between 1 July and 30 November. It would stay in situ for 21 consecutive days following the last sign indicating possible access by badgers into the sett and until immediately before action is taken to close or destroy the sett.</p>	3.5.12 – 3.5.13
B7	Protection of barn owls	<p>Completed barn owl Stage 3 surveys confirmed where barn owls are absent and not considered to be nesting or potentially nesting, and allow for the temporary blockage of confirmed nesting sites and potential nesting sites (PNS) for the duration of construction, following provision of alternative nesting sites (e.g. barn owl nestboxes). Checks of features (pre-commencement surveys) will be undertaken immediately prior to their temporary closure, by an experienced ornithologist who holds a Natural England class 1 barn owl licence. If barn owls are present and confirmed to be nesting during these pre-commencement surveys, the nest site will need to be monitored and will only be closed once individuals have naturally fledged. Until the chicks have fledged and the nests become inactive, it may be necessary to employ 'no-working' buffers around the nest(s), if active breeding overlaps with the pre-commencement or main construction works, to avoid disturbance of any actively breeding birds. The need for and the design of 'no-working' buffers would be confirmed by an ecologist and would be subject to the works proposed in the area around the active nest.</p> <p>Barn owl boxes shall be installed by a competent ecologist one year prior to construction, and no later than mid-February prior to the commencement of any work, either on retained trees of a suitable maturity or on posts, close to confirmed nesting sites which will be lost and not within the Zone of Influence. This will allow the barn owl boxes time to weather and provide barn owls time to explore them prior to closure of confirmed nesting sites. Any confirmed nest sites will be closed a year after barn owl box installation, outside of the core nesting period prior to construction to reduce risk of the nest being active. Two barn owl boxes will be erected for each occupied breeding site (OBS) temporarily lost during construction. One barn owl box will be erected for each PNS temporarily lost during construction. These will be erected prior to the temporary blockage of nest sites and will be located as close as possible to the closures, beyond 175m from the Scheme, as directed by a competent ecologist.</p> <p>Indicative suitable locations for barn owl box installation have been informed by the completion of barn owl Stage 3 surveys, foraging and commuting habitats (existing and post-construction landscape planting) and the carriageway alignment. This has facilitated securing landowner permissions, to install barn owl boxes, allow access for monitoring surveys and maintenance. Barn owl box pairs will be located within approximately 100-150 metres of each other to create a breeding territory. Where more than one confirmed barn owl nest is recorded,</p>	3.5.12 – 3.5.13, 3.5.18 – 3.5.19

Information from the REAC			Relevant Section of Pre-commencement Plan (where applicable)
REAC ID	Objective	Action or commitment	
		<p>paired boxes will be located approximately 500-1km between territories. Indicative locations of barn owl nestboxes are detailed on Figure 2.3 (Environmental Masterplan) of the ES Figures [AS-026].</p> <p>Annual checks of barn owl nest boxes will be undertaken during construction and for five years post-construction (during the after-care period), with remedial measures undertaken (e.g. clearing of nest debris only if full and therefore unusable, nestbox replacement if deteriorated beyond use) as required. Records of barn owl nest box usage to be submitted by the PC to Local Record Centre (LRC).</p> <p>Habitat manipulation under the supervision of an ECoW of the isolated Type 2 habitat (sub-optimal) south of the new flyover between Brownhills roundabout and the A1 carriageway would further reduce the risk of vehicle collision with barn owl at this potential new Traffic Accident Blackspots (TAB). Such mitigation would commence during the construction works and continue through operation and would include habitat management such as intensive mowing to render habitat further unsuitable for foraging barn owls.</p>	
B8	Protection of breeding birds	<p>Where possible vegetation clearance and topsoil removal will be programmed to avoid the nesting bird season (March – August inclusive) and night-time hours. Where this is not possible, a nesting bird check / pre-construction check will be carried out by a suitably experienced ecologist of the vegetation to be removed and immediately adjacent, no more than 48 hours in advance of proposed clearance works to check for bird nesting activity. The ecologist will provide actions for implementation based on the findings of the survey, which may include species specific buffer zones of no construction or vegetation removal activity, and compensation should any losses of Schedule 1 species nest be required.</p> <p>Removal of the rookery located northwest of Friendly Farmer Roundabout and partial removal of the rookery located at Winthorpe Roundabout, would be between September and February inclusive, outside of the core nesting period (where possible).</p> <p>In addition to embedded mitigation (such as directional lighting), the use of task lighting with cowls will minimise disturbance during unavoidable night works.</p> <p>A pair (2 no.) of kestrel nest boxes shall be installed a year prior to construction commencing, on retained vegetation or on a post within suitable habitat close to the kestrel nest to be lost and approximately within 100-150 metres of each other. The exact placement of these will be directed by a competent ornithologist on site e.g. out of prevailing winds. The indicative locations are shown on Figure 2.3 (Environmental Masterplan) of the ES Figures [AS-026].</p>	3.5.12, 3.5.18, 3.5.21
B9	Protection of fish	<p>Electro-fishing will be undertaken as part of fish rescue prior to sheet piling at Windmill Viaduct and works to Slough Dyke to mitigate injury and death of fish. The screening aperture across the abstraction pump inlets during dewatering works at Slough Dyke would be small enough to prevent access of European eel (yellow eel life stage) (no greater than 3mm).</p> <p>The sheet piling has been realigned to avoid severing the gabion basket on Windmill Viaduct north bank. It would now sit behind the gabion basket, avoiding loss of fish refugia, retaining the existing riverbank profile, whilst providing scour protection. A net would be installed in front of the retained gabion basket and electro-fishing will be undertaken by a competent ecologist to facilitate a fish rescue prior to sheet piling commencing. An ECoW will be required to supervise the installation of sheet piling to further reduce risk to fish species such as eel. Where possible, sheet piling works, integrating the drainage design into the existing headwall adjacent to Nether Lock Weir and dewatering Slough Dyke would avoid the coarse fish spawning period (between March to 15 June). Sheet piling works would be undertaken in the daytime to avoid adverse impacts during more sensitive periods for fish, including migration of lamprey at night. Use suitable piling equipment to minimise noise and vibration and a slow start-ups would be used where possible, for all night works adjacent to the River Trent (e.g. bridge beam installation) and any daytime works likely to cause disruption to fish migration, spawning and foraging (e.g. sheet piling).</p> <p>Temporary drainage and silt management techniques are detailed in commitment RDWE3 and GS3 of this table. These methods, such as silt curtains and cut-off ditches, would be used during construction to reduce the amount of silt discharging into ecologically sensitive areas. Water quality monitoring would be undertaken downstream of these works to detect adverse levels of sediment. Where indicated, remedial action would be taken to protect the fish spawning site.</p> <p>The wetland design within Farndon East and Farndon West FCAs has incorporated fish escape passages to mitigate the risk of entrapment of lamprey (during times of breeding or migration) and any other fish species that may enter the Farndon West FCA and Farndon East FCA during flood events. Fish escape passages are required mitigation as detailed within the Environmental Statement, WFD Compliance Note and Habitats Regulations Assessment. Proposals are for two fish escape passages, one from each of the Farndon FCAs. These are proposed as naturalised channels measuring approximately 0.5m wide and 0.3m deep, providing passage for fish from the FCAs back into the River Trent via Old Trent Dyke as flood water recedes. The Farndon West FCA waterbodies have been designed to be a minimum of 2 metres deep to provide stable thermal properties for the survival of fish until the next flood event, should individuals not</p>	2.2.24, 3.5.21, 3.8.59,

Information from the REAC			Relevant Section of Pre-commencement Plan (where applicable)
REAC ID	Objective	Action or commitment	
		<p>use the fish escape passage as flood water recedes.</p> <p>Static, task lighting with cowls should direct light towards the areas of works to minimise light spill on lamprey migratory routes.</p> <p>Night working will be restricted along the majority of the working width along the River Trent to minimise the requirement for artificial lighting to be used, thereby avoiding disturbance effects of artificial lighting on sensitive ecological features.</p> <p>Where this is not possible, static, task lighting with cowls will direct light towards the areas of works and avoid direct illumination of the River Trent. The only exception to this would be during crane slewing, where the lighting on the boom may cast across the water before coming to rest on the beam lift, which would be temporary and short-term (taking place over four 30-minute intervals during a night shift).</p>	
B10	Preventing the spread of INNS	<p>An INNS Management Plan and Biosecurity Risk Assessment will be prepared as part of the Second Iteration EMP prior to construction commencing which will outline measures to manage and prevent the spread of INNS from the invasive species working areas within the Order Limits and the spread of INNS into the Order Limits, so far as is within the control of the Applicant, as a result of Scheme construction activities (e.g. transportation in building materials and vehicle tyre tread). The INNS Management Plan and Biosecurity Risk Assessment will be submitted to and agreed with Nottinghamshire County Council and Newark & Sherwood District Council. Biosecurity measures and other aspects to be included in the INNS will include, but not be limited to the following:</p> <ul style="list-style-type: none"> • All plant within an invasive species working area will be retained within this area, to prevent spread elsewhere in the construction corridor. • A separate refuelling area will be established for an invasive species working area, to make sure plant stays within the restricted area. • All pedestrians will be required to clean their footwear as they exit an invasive species working area, including removal of physical organic matter and boot baths. • Any arisings from the boot bath will be deposited onto the invasive species working area, not within 10m of any watercourses (nor on a slope with a hydrological pathway) and refreshed/refilled when required. • Demarcate a designated area for vegetation clearance arisings to be kept on site. • When construction plant leave an invasive species working area, a full biosecurity wash-down will be established to allow jet washing of all plant to remove any contaminated material. • No contaminated runoff will be allowed to enter drains or watercourses. • No clearance of Indian balsam within 10m of any watercourses when seeds have germinated. 	3.5.33, 3.5.34, 3.8.61
B11	Protection of habitats during operation	As set out in commitment L5 of this First Iteration EMP, maintenance should be undertaken in accordance with the Series 3000 Landscape and Ecology specification appendices and LEMP (to be produced) to ensure the establishment and continued growth of new plant stock to ensure mitigation planting meets its objectives as presented in Figure 2.3 (Environmental Masterplan) of the ES Figures [AS-026]. This would include the replacement of failed or defective plants where necessary.	N/A
B12	Protection of habitats during operation to achieve expected Biodiversity Net Gain (BNG) score	Production of a BNG Management and Monitoring Plan detailing how BNG will be achieved. Any habitat creation contributing to BNG will be maintained and monitored for 30 years post construction.	N/A
B13	Review the delivery of the habitat creation and determine whether BNG has occurred.	A Biodiversity Net Gain Audit and Report would be undertaken both at the end of construction and at the end of a 5-year aftercare period for new landscape planting and habitat creation. The purpose of this would be to review the delivery of the habitat creation and determine whether BNG has occurred.	N/A
B14	Protection of reptiles	<p>Phased vegetation clearance will be carried out under ECoW supervision in areas where surveys have identified reptiles are present. This will comprise an initial cut of scrub and tall vegetation to approximately 250 millimetres and arisings will be removed. This will be followed by a second cut 48 hours later to lower vegetation to approximately 150 millimetres, and arisings will be removed. The second cut must move in a directional manner towards retained vegetation suitable for reptiles and be undertaken during the active season and during suitable whether conditions with reference to best practice. The planting design will reinstate or create habitats lost in areas where reptiles have been recorded and once established, improve connectivity along the A46 to suitable areas along the Scheme.</p> <p>The provision of log and brash piles from retained felled trees, in species rich grassland, around ponds with areas of scrub and creation of the Farndon West wetland area will compensate for the loss of habitat suitable for reptiles at different life stages (within the Order Limits).</p> <p>Population size class surveys for reptiles will take place pre-construction to inform the quantity of- and suitable location/s to create- hibernacula, providing further opportunities for hibernation to compensate for the loss of shelter, resulting from vegetation clearance. In the absence of survey data, suitable locations for hibernacula shown on Figure 2.3 (Environmental Masterplan) of the ES Figures [AS-026] are indicative only. Details of hibernacula will be provided in the Second Iteration EMP.</p> <p>Monitoring will be undertaken in year 1, 3 and year 5 during operation. Monitoring will comprise of only an assessment of habitat created for reptiles in year 1 and</p>	3.5.10

Information from the REAC			Relevant Section of Pre-commencement Plan (where applicable)
REAC ID	Objective	Action or commitment	
		presence / likely absence surveys for reptiles as well as habitat assessment in year 3 and 5. Results will indicate whether new habitats have established successfully, whether reptiles have recolonised and will inform whether any remedial work is required.	
B15	Compensatory requirements for local wildlife sites (LWS)	The planting plan details provision of habitats equivalent to those lost for which a LWS has been designated or which support protected species for which the site has been designated. The location of this compensation habitat will be provided as close to the source of loss and within the Order Limits (detailed in Figure 8.4 (Compensation Planting for Loss of Local Wildlife Site Habitats) of the ES Figures [APP-084]). The Figure 2.3 (Environmental Masterplan) of the ES Figures [AS-026] details the species composition within compensation planted areas. Where possible, habitats within LWS in poor condition will be enhanced to compensate for increased nitrogen deposition during operation which cannot be mitigated. As planting along the A46 carriageway corridor establishes, it will act as more of a buffer over time to adjacent grassland (Figure 2.3 (Environmental Masterplan) of the ES Figures [AS-026]).	N/A
B16	Compensation for losses of habitats of principle importance (HPI)	Use of Cellweb matting in Great North Road Grassland LWS, where lowland meadow HPI will be subject to temporary long-term loss (during the construction period), to reduce soil compaction, ensuring suitable ground conditions endure to allow for successful recreation of lowland meadow from green hay cut post-construction. Green hay from surrounding retained lowland meadows will be used to create lowland meadow in fields adjacent to Great North Road Grassland LWS (Figure 2.3 (Environmental Masterplan) of the ES Figures [AS-026]) and Figure 8.4 (Compensation Planting for Loss of Local Wildlife Site Habitats) of the ES Figures [APP-084]. Coastal floodplain grazing marsh will be created in Farndon West borrow pits post construction to compensate for the loss of this HPI. Creation of lowland mixed deciduous woodland within the Order Limits to compensate for the loss of this HPI. In addition, either plantation woodland at Doddington Hall will be subject to enhancement to create lowland mixed deciduous woodland to compensate for the loss of lowland mixed deciduous woodland of a poorer condition or a suitable alternative would be provided. The details of this will be included in a LEMP.	N/A
B17	Protection of veteran trees during construction	Temporary barrier protection must be erected in accordance with BS 5837:2012 and positioned to enclose the section of their RPAs outside the construction footprint. The area within the protective barriers will be a Construction Exclusion Zone (CEZ) for the duration of the works. Temporary ground protection matting in the form of two layers of permeable Cellweb matting to sufficiently distribute the load of heavy construction plant that cannot be excluded from the RPA of retained veteran trees T038, T136, and T139, mitigating compaction of the soil along this track and resulting in no change to water availability to the veteran tree's remaining RPA. Excavation works required for the drainage pipe installation within T038's RPA must be carried out with supervision from a competent arboriculturist and in accordance with the recommendations in BS 5837:2012 (7.2). Permanent ground protection will be required where the permanent maintenance track is within the RPA of T136 and T139. The ground protection specification for the maintenance track will be in accordance with the BS 5837:2012 specification and be suited to distribute vehicle loads using the maintenance track without causing compaction within the RPA. The southern side of T139's crown will require vertical pruning (<0.5 metres) to provide vertical clearance to facilitate plant access. The physiological condition of the veteran trees will be monitored by an Arboriculturist prior to the commencement of construction and following the installation of temporary protection measures. Excavation works within the RPA of trees T038, T136, and T139 must be carried out with supervision from a competent arboriculturist and in accordance with the recommendations in BS 5837:2012 (7.2). The Scheme arboriculturist should provide supervision at three intervals during the development of the proposal when in proximity of veteran trees T038, T136, and T139. These intervals should be: <ul style="list-style-type: none"> • Prior to the commencement of construction operations and following the installation of temporary protection measures • During construction of the earthworks and adjacent haul road/maintenance track • On completion of the construction operations in this location. 	3.5.25 – 3.5.32
B18	Protection of veteran trees in operation	It is recommended that annual inspections are undertaken of veteran trees T038, T136 and T139 to monitor the physiological condition and effectiveness of the aforementioned mitigation. The need for management of the retained veteran tree crown (for clearance of maintenance vehicles) would be assessed during annual monitoring surveys of the veteran tree health (will be detailed in the Second Iteration EMP).	N/A
GEOLOGY AND SOILS			
GS1	The protection of soil structure and quality – to prevent	The SMP will be developed, implemented and based on the OSMP provided in Appendix B.3 of this First Iteration. The soil management plan will be	3.6.1 – 3.6.34

Information from the REAC			Relevant Section of Pre-commencement Plan (where applicable)
REAC ID	Objective	Action or commitment	
	degradation of soils both within and outside the permanent and temporary development areas.	<p>implemented for all soil handling activities, including pre-commencement activities. This is to ensure works are undertaken in accordance with appropriate guidelines including Defra's Construction Code of Practice for the Sustainable use of Soils on Construction Sites (2009)¹ and the British Standards Institution Specification for topsoil BS 3882 (2015)² particularly in areas where reinstatement of agricultural land is required. BS 3882:2015² will also apply for topsoil spreading on areas of newly constructed earthworks where import is required.</p> <p>Where importation of topsoil is required for spreading on areas of newly constructed earthworks, a soil certificate will be required in accordance with BS 3882:2015² to ensure that the topsoil provides suitable substrates for native plant species and to maximise biodiversity, in accordance with industry best practice. Management of excavated topsoil and subsoils would be in line with the guidance provided within the OSMP.</p> <p>Soils will only be handled when in a sufficiently dry state, subject to a field test.</p>	
GS2	To maximise the re-use of suitable site-won geological resources while minimising waste generated for disposal off site, and minimising the need for importation of virgin materials. To comply with industry recognised code of practice for the re-use of excavated material on-site in construction.	Where Made Ground (soil and stones (from construction and demolition sites) not containing hazardous substances) is proposed to be reused on-site, then up to 1000t may be placed under a U1 Exemption. If the amount of Made Ground proposed for reuse exceeds the exemption limit, a Materials Management Plan (MMP) or re-use of waste environmental permit must be used. Completion of earthworks in line with the site MMP (refer to Appendix B.2 of this First Iteration EMP for the Outline MMP) and Site Waste Management Plan (SWMP) (refer to Appendix B.1 of this First Iteration EMP for the OSWMP), and compliance with the CL:AIRE document 'The Definition of Waste: Development Industry Code of Practice' (2011) ³ .	3.11.1 - 3.11.5
GS3	The protection of controlled waters: general.	<p>Works to be carried out in accordance with Environmental Protection Act (EPA) 1990, Section 161A of the Water Resources Act 1991 and the Environmental Permitting (England and Wales) Regulations 2016. Reasonable and practicable steps to be taken to protect the water environment will be identified in the Pollution Prevention Plan as part of the Second Iteration EMP and include:</p> <ul style="list-style-type: none"> • The careful management of construction site drainage, including the use of cut-of ditches to collect site run-off passed through settling lagoons or silt traps to allow removal of sediments prior to discharge. Where considered necessary, treatment plant will be made available on site for construction runoff water and groundwater from dewatering, including: <ul style="list-style-type: none"> ○ Settlement tanks ○ Chemical dosing plant ○ Concrete washwater plant ○ Oil-water separators ○ Materials separators • All immobile plant must stand on impervious drip trays to prevent spillage of fuel and oil. Fuels, oils and chemicals will be stored safely and be suitably bunded. Repairs and refueling of machinery will be carried out on impervious drip trays or within a designated construction site compound. • Management of excavated topsoils and subsoils will be in line with the guidance provided within the SMP, to minimise soil being entrained in runoff water. • Works will be monitored by the PC Environmental Manager. An auditing programme will be implemented to verify environmental performance. Surface water quality testing is recommended to be undertaken during and post works to compare against these baseline conditions to ensure no deterioration of surface water quality. 	2.2.18, 2.2.24, 3.8.1 – 3.8.62, 3.9.1 – 3.9.3
GS4	The protection of controlled waters during excavation and foundation works.	<p>Where piling or penetrative ground improvement is required, the works will be carried out in accordance with the Environment Agency guidance^{4,5}.</p> <p>Nether Lock Viaduct new and Nether Lock railway bridge new structures require piled foundations. Piling Works Method Statement will be produced for the works. This method statement will be specific to the piling locations and will include an appropriate risk assessment</p> <p>The location of the contamination hotspot at Nether Lock will be recorded and documented by the Detailed Design Consultant and shared to the PC. Before construction commences, the PC will install fencing and signage, clearly identifying and restricting access to the area. Should there be changes in the proposed works at the WS46 hotspot, Newark and Sherwood District Council will be informed and engaged in discussions.</p> <p>The batching of concrete to only be undertaken in designated impermeable areas with a segregated drainage system, placement of temporary bunds down-slope to contain any spillages, and the development of a spill response protocol by the</p>	2.2.18, 2.2.24, 2.3.20, 2.4.30, 2.6.18, 3.8.1 – 3.8.62

¹ Department for Environment, Food, and Rural Affairs (2009). Construction Code of Practice for the Sustainable use of Soils on Construction Sites.

² British Standards (2015) BS 3882:2015 Specification for topsoil.

³ CL:AIRE Definition of Waste: Development Industry Code of Practice, March 2011

⁴ Environment Agency (2001) Piling and penetrative ground improvement methods on land affected by contamination: guidance on pollution prevention. National Groundwater and Contaminated Land Centre Report NC/99/72 [online] available at: [Piling and penetrative ground improvement methods on land affected by contamination: guidance on pollution prevention - The Construction Information Service \(ihs.com\)](#) (last accessed November 2023).

⁵ Environment Agency (2002) Piling into contaminated sites. National Groundwater and Contaminated Land Centre Report [online] available at: [\[ARCHIVED CONTENT\] \(nationalarchives.gov.uk\)](#) (last accessed November 2023).

Information from the REAC			Relevant Section of Pre-commencement Plan (where applicable)
REAC ID	Objective	Action or commitment	
		<p>PC Environmental Manager.</p> <p>Excavations may require dewatering of run off waters, perched waters or groundwater. In particular, dewatering is likely in the identified FCAs. No waters are to be discharged directly into any watercourse. Discharge to surface waters may require Land Drainage Consent. The discharge of potentially contaminated groundwater will be managed by the PC through the use of appropriate treatment prior to discharge.</p>	
GS5	The protection of site soil and groundwater quality with respect to plant and working methods.	<p>Working method statements to be in place during construction, reflecting the guidance to be included within the Second Iteration EMP, to ensure environmentally safe working practices on site with respect to the underlying ground and groundwaters. These will include (but not limited to):</p> <ul style="list-style-type: none"> • The storage of oil, fuel and other potentially hazardous substances will be within a secure site compound located on a hardstanding area. Storage of these substances will be within an appropriately bunded area (110% of total capacity volume), at minimum of 10m away from controlled waters and as far away from drain gullies as practically possible. • There will be designated refuelling and maintenance areas and concrete batching with drainage treated appropriately. Placement of temporary bunds down-slope of potentially polluting activities will contain any spillages. A spill response protocol will be developed. Any spillages are to be cleaned up immediately and the site manager notified. • Regular inspections of site plant will be carried out and the use of drip trays and training in the location and use of spill kits and emergency spillage procedures will be provided for site workers. Action Plans will be in place to effectively deal with any contamination issues during construction for example for spillages and leaks from construction plant. All refuelling operations shall be supervised and closely monitored to avoid overfilling and unnecessary spillages. • Adjacent areas outside Order Limits will be protected by site fencing to prevent accidental encroachment and damage of topsoil by site plant. • Piling Works Method Statement will be produced for the works. This method statement will be specific to the piling locations and will include an appropriate risk assessment. 	2.1.5, 3.9.1 – 3.9.3
GS6	Management of contamination risks: reporting	<p>A qualitative and quantitative Contaminated Land Risk Assessment (CLRA), has been prepared for the Scheme(Appendix 9.2 (Contaminated Land Risk Assessment) of the ES Appendices [APP-164 to APP-169]. The CLRA is to be shared with the PC prior to commencement of construction.</p> <p>The following recommendations from the CLRA should be implemented by the PC and are summarised below:</p> <ul style="list-style-type: none"> • PC to develop and adhere to an unexpected contamination protocol as part of the construction works. • In the event that contaminated land, including groundwater, is found at any time when carrying out the authorised development, which was not previously identified in the Environmental Statement, requirement 8 of the draft DCO[REP2-002] should be referred to. • If any asbestos is identified as part of the works, a specialised contractor should be contacted to advise on potential asbestos risk and remediation requirements. • The location of the contamination hotspot at Nether Lock will be recorded and documented by the detailed design consultant and shared to the PC. Before construction commences, the PC will install fencing and signage, clearly identifying and restricting access to the area. Should there be changes in the proposed works at the WS46 hotspot, Newark and Sherwood District Council will be informed and engaged in discussions. 	2.5.19 – 2.5.20, 3.4.6, 3.12.1 – 3.12.2
GS7	Management of contamination risks: workers	<p>PC Environmental Manager to review Appendix 9.2 (Contaminated Land Risk Assessment) of the ES Appendices [APP-164 to APP-169] prior to construction commencing and produce risk assessments specific to the works in order to identify risks and appropriate mitigation measures in line with all the relevant health and safety legislation and guidance, to ensure the safety of workers.</p> <p>Contamination risks to construction workers will also be managed in accordance with DMRB GG 104⁶ Requirements for safety risk assessment.</p> <p>Potential risk from ground gases to construction workers working in excavations and other confined spaces will be managed by the PC, in-accordance with The Confined Spaces Regulations 1997⁷. Furthermore, access to confined spaces and excavations would be restricted. Where work in confined spaces is unavoidable, site-specific and task-specific risk assessments would be undertaken.</p>	3.12.1 – 3.12.2
GS8	To maximise the re-use of excavated soils while maintaining their quality and integrity.	<p>The re-use of soil resources – such as on-site to facilitate landscape planting or wetland establishment, or off-site – is a vital design consideration. The success of re-use relies on the appropriate utilisation of the tailored soil management measures included within the OSMP (Appendix B.3 of this First Iteration EMP), which is built on the results of the Agricultural Land Classification (ALC) surveys, while the Soil Nutrient Surveys (SNS) should be referred to in order to guide landscape plant design.</p>	2.2.7, 3.5.5, 3.6.1 – 3.6.34

⁶ Highways England, Design Manual for Roads and Bridges, GG104 Requirements for safety risk assessment ([0338b395-7959-4e5b-9537-5d2bdd75f3b9 \(standardsforhighways.co.uk\)](https://standardsforhighways.co.uk)) (last accessed November 2023)

⁷ Confined Spaced Regulations 1997. Available at: [The Confined Spaced Regulations 1997 \(legislation.gov.uk\)](https://legislation.gov.uk) (last accessed November 2023).

Information from the REAC			Relevant Section of Pre-commencement Plan (where applicable)
REAC ID	Objective	Action or commitment	
GS9	To reinstate agricultural land to its previous condition	Where agricultural land is to be returned to the landowner, it will be returned to its previous condition as determined by the ALC survey and set out in the OSMP (Appendix B.3 of this First Iteration EMP).	N/A
MATERIALS AND WASTE			
M1	Reduce the use of materials and ensure resource efficiency.	A Materials Management Plan (MMP) will be prepared based on the Outline MMP at Appendix B.2 of this First Iteration EMP and will accord with the CL:AIRE Definition of Waste: Code of Practice. Material requirements will be minimised during detailed design with consideration of the following principles when technically and economically feasible: <ul style="list-style-type: none"> sequencing of the works in relation to reuse of material designing to reuse as much site-won material as possible where site won material is not available or suitable for reuse, secondary or recycled materials will be procured precast elements would be used 	N/A
M2	Ensure efficient use of material assets for the Scheme, and minimising waste arisings.	Locally sourced materials and suppliers to be used where possible. Materials will be delivered on a just-in-time basis, and critical materials stored on site where appropriate.	3.11.2
M3	Reduce generation of waste.	A Site Waste Management Plan (SWMP) will be prepared based on the OSWMP in Appendix B.1 of this First Iteration EMP. Works will accord with the SWMP to reduce waste arisings, by implementing the principles of the waste hierarchy and circular economy. The following measures will be implemented, where feasible throughout construction: <ul style="list-style-type: none"> all suitable excavated material will be reused in landscaping features or flood compensation areas; and it will also be considered to create flood bund, when possible green waste arisings from vegetation clearance would be chipped on-site and reused in the landscaping, or sent off-site for processing, likely to be composted waste arisings from demolition works will be sorted and managed as high up in the waste hierarchy as possible; reuse on-site will be first option (i.e. by crushing, blending and subsequent reuse, as an aggregate), or sent to a recycling/recovery facility. on-site facilities will be provided to separate out waste to enable the recovery of material through recycling where waste must be taken to a recycling or disposal site, the PC would ensure that the site has the appropriate permits and that it is located as close to the works as possible temporary stockpiling of fill materials prior to incorporation in the Scheme would be avoided material and waste audits will be undertaken by the PC potential hazardous waste will be identified and separated from other waste streams to avoid contamination surplus soils would be offered to Schemes in close proximity to the Scheme for reuse on land. Disposal to landfill will be considered the last preferred option 	3.4.1 – 3.4.8
M4	Providing enhancements where technically appropriate and economically feasible for material assets and waste	Additional measures that could also be considered in the Scheme, where technically appropriate and economically feasible, are listed below: <ul style="list-style-type: none"> Low carbon materials would be prioritised. Materials with recycled content would be considered to be used within the Scheme. Similarly, considerations would be undertaken for the reuse of materials or the use of materials with higher proportions of sustainable features. 	3.10.1 – 3.10.3
NOISE AND VIBRATION			
NV1	To ensure that the effects of noise are controlled, and that the measures for controlling noise are implemented accordingly.	The PC will develop and implement a Noise and Vibration Management Plan (NVMP) based upon the REAC, which will detail the management and monitoring processes to be introduced across all construction sites and compounds. <p>The Plan will adopt a range of industry standard good practice construction phase mitigation and monitoring measures, and general control measures, including but not limited to, the following:</p> <ul style="list-style-type: none"> Integration of noise control measures into the preparation of all method statements for the works. Details and locations of all site hoardings, screens or bunds that would provide acoustic screening during construction. Procedures for the installation of noise insulation (if deemed to be required) or provision of temporary re-housing (if deemed required) and to ensure such measures are in place as early as reasonably practicable. Noise and vibration monitoring protocols including monitoring locations, stages during construction at which monitoring would be undertaken, and methods of publishing the results. Details of inspection and maintenance schedules to be undertaken. Processes to ensure ongoing compliance with all controls and consent for the works. Process for implementing corrective actions that may be required to avoid or address a potential non-compliance. Coordination with Local Authority to agree the use of Section 61 applications as needed. 	2.6.14, 3.3.1 – 3.3.8
NV2	Limit noise emissions during construction.	Temporary acoustic barriers would be used to control noise during construction where there would otherwise be significant adverse effects. In each case these would need to break line of sight between the specific construction activity and	2.2.21, 2.4.18, 2.6.7, 3.3.1 – 3.3.8

Information from the REAC			Relevant Section of Pre-commencement Plan (where applicable)
REAC ID	Objective	Action or commitment	
		<p>the specified affected receptors, all of which are listed in “Assessment of likely significant effects” in Chapter 11 (Noise and Vibration) of the ES [APP-055]. The following list sets out the barrier locations and the phases of construction for which they would be required:</p> <ul style="list-style-type: none"> • Construction activities visible from Sandhills Park during the pre-commencement works; • Construction activities visible from Alexander Avenue during pre-commencement works, earthworks and floodplain compensation, ground improvement works, and bridge structure works; • Construction activities adjacent to Windmill Viaduct during earthworks and floodplain compensation, ground improvement works, and bridge structure works; • Construction activities adjacent to Cattle Market Roundabout during pre-commencement works earthworks and floodplain compensation, drainage, and roadworks (barriers must also be adjacent to the tie in to the Great North Road (B6326) and receptors at Kelham Road); • Construction activities adjacent to Nether Lock Viaduct during earthworks and floodplain compensation, ground improvement works, and bridge structure works; • Construction activities adjacent to the proposed grade-separated junction at Brownhills during pre-commencement works, earthworks and floodplain compensation, drainage, and roadworks; • Construction activities adjacent to construction activities in Winthorpe during earthworks and floodplain compensation (barriers must be adjacent to the bund construction) and roadworks (barriers must be adjacent to the northern tie in to the existing A46); • Construction activities adjacent to borrow pit excavation during earthworks and floodplain compensation works; • Construction activities adjacent to site compounds during their operation; and • Construction activities adjacent to Kelham and Averham FCA construction. 	
NV3	Limit noise emissions during construction.	<p>During Pre-Commencement works: Control the on-time of, or acoustically treat, the excavator with breaker attachment and the hydro demolition equipment (a major contributor of noise during demolition).</p> <p>Control the quantity and/or on-time of the excavators and dozers (the main contributors of noise during parts of the Kelham and Averham FCA related works that occur during the pre-commencement phase) operating within 300 metres of affected receptors. If it is unfeasible to restrict the excavators and dozers in this way they must be fitted with efficient exhaust reduction equipment and manufacturers’ enclosure panels must be kept closed.</p> <p>Control the quantity and/or on-time of the strimmers and chainsaws (the main contributors of noise during site clearance) operating within 300 metres of affected receptors.</p>	2.2.22, 2.6.8, 3.3.1 – 3.3.8
NV4	Limit noise emissions during construction.	Control the on-time (to fewer than 10 days or nights in any 15 consecutive days or nights and a total number of days or nights fewer than 40 in any 6 consecutive months) and/or the quantity of excavators and dozers (the main contributors of noise during this activity) operating within 300 metres of affected receptors during earthworks and floodplain compensation. Excavators and dozers must alternatively be fitted with efficient exhaust reduction equipment and manufacturers’ enclosure panels must be kept closed if they are to operate within 300 metres of affected receptors during Earthworks and floodplain compensation.	2.4.19
NV5	Limit noise emissions during construction.	If piling activities are elevated such that any temporary acoustic barriers would need to be unfeasibly tall to break line of sight then they would be fitted with appropriate measures to control noise generation at the source e.g. muffler or sound reduction equipment during Bridge structures.	2.6.8
NV6	Limit noise emissions during construction.	Control the on-time (to fewer than 10 days or nights in any 15 consecutive days or nights and a total number of days or nights fewer than 40 in any 6 consecutive months) and / or the quantity of the mobile concrete pump, the concrete wagons, and the poker vibrator (the main contributors of noise during this activity) operating within 300m of affected receptors in the night-time bridge deck construction during Bridge structures.	N/A
NV7	Limit vibration during construction.	Where vibration levels would exceed SOAEL the PC will: use alternative piling methods and/or plant if practicable; keep occupiers informed of the likely times and duration of works through letterbox drops; monitor the vibration level at the nearest receptors (or at an equivalent offset distance) to enable the vibration level at receptors to be determined; and carry out a condition survey at nearby structures where necessary to ensure works can progress without causing permanent damage, and to ensure any current damage to buildings is accounted for ahead of time.	2.6.14, 3.3.7
NV8	Manage noise and vibration levels during construction.	The use of best practicable means (BPM) would be applied for noise and vibration control at all times during construction. These should include the selection of the most appropriate method and plant for the job, adequate maintenance of plant, optimum siting of stationary plant, local screening and the education of the workforce. Restrictions may also be placed on early/late delivery times.	3.3.1 – 3.3.8
NV9	To contain road traffic noise and minimise operational effects on noise sensitive receptors.	Three landscape bunds at a height of 2.0-2.5m would be included north of the A46 section between the A1 and Winthorpe roundabout which will also provide noise screening. The locations of the bunds are illustrated on Figure 2.3 Environmental Masterplan of the ES Figures [AS-026].	N/A

Information from the REAC			Relevant Section of Pre-commencement Plan (where applicable)
REAC ID	Objective	Action or commitment	
NV10	To contain road traffic noise and minimise operational effects on noise sensitive receptors.	<p>Six noise barriers at a height of 2m from the road surface (or from local ground, if not positioned along the A46) would be included along the Scheme:</p> <ul style="list-style-type: none"> • Two located along the southbound entry slip from Cattle Market Roundabout extending part way down the west side of the Great North Road south of Cattle Market Roundabout; • One located at the southbound entry slip road at Brownhills Junction; • One along the northbound carriageway from the Brownhills Junction to the Esso Service Station; • Two located from the Esso Service Station to the Winthorpe Roundabout at the northern extreme of the Scheme, transitioning at the midpoint from barrier at the roadside to barrier on the crest of the adjacent bund. <p>The locations of the noise barriers are illustrated on Figure 2.3 (Environmental Masterplan) of the ES Figures [AS-026].</p>	N/A
NV11	To contain road traffic noise and minimise operational effects on noise sensitive receptors.	Standard height parapets with infill panels would be included along the west side of the new viaduct and the east side of the existing viaduct (the parapet along the western side of the viaduct to extend further south towards Farndon Roundabout, transitioning in form in to a 2 metre barrier).	N/A
NV12	To contain road traffic noise and minimise operational effects on noise sensitive receptors.	Low noise surfacing will be provided along the new dual carriageway, where existing pavements are retained along the existing A46 then these will be re-surfaced with low noise surfacing where this has not been undertaken already.	N/A
NV13	Limit noise emissions during construction.	Control the extent of usage of any particular public and non-public diversion route used to transfer plant and material to site at night (to fewer than 10 nights in any 15 consecutive nights and a total number of nights fewer than 40 in any 6 consecutive months).	N/A
POPULATION AND HUMAN HEALTH			
PHH1	To ensure there is a safe environment for those travelling along the route, and for those delivering the construction works. Also, to ensure access to and reduce disruption to residential properties, businesses and community assets.	As detailed in Table 1-6 of Appendix 12.2 (Population and Human Health Supplementary Information) of the ES Appendices [APP-175], a Traffic Management Plan (TMP) would be implemented during the construction phase of the Scheme, to ensure that access is maintained to private property, businesses, community land and facilities and WCH routes as well as access to green and designated open spaces and disruption is minimised as far as possible.	3.14.1 – 3.14.29
PHH2	To ensure that construction information is disseminated to landowners, parish councils, local interest groups and the general public.	Engagement with local people and businesses (including bus companies) about how construction may impact them will take place prior to, and throughout, the construction period. As part of this, regular engagement should be undertaken with the Newark Showground and other recreational activities to ensure construction activities are planned around key events.	3.14.11, 3.14.20
PHH3	To minimise impacts on WCH as a result of the Scheme	As detailed in Table 1-6 of Appendix 12.2 (Population and Human Health Supplementary Information) of the ES Appendices [APP-175], all temporary diversions for WCH around the work site to be clearly signed, with alternative access arrangements maintained throughout the construction period, as required. WCH routes are to only be closed once diversions are in place or the new arrangement has been established. New or diverted WCH routes have been embedded into the Scheme design in operation.	3.14.27 – 3.14.29
PHH4	To capture and maximise socio-economic benefits of the Scheme locally and understand the overall economic benefits of the Scheme for local communities within Newark & Sherwood District	To enhance socio-economic benefits captured within the local area, the following monitoring will be undertaken throughout the construction period by: <ul style="list-style-type: none"> • Monitoring the number of employees from the local (Newark & Sherwood District) area • Monitoring what apprenticeship and training opportunities have been provided where people of Newark & Sherwood District have benefited • Recording the monetary value of contracts which have been entered into with local (Newark & Sherwood District) companies 	N/A
PHH5	Identify targets and strategies to implement to increase the diversity of the workforce for the Scheme and to ensure that local people benefit from jobs created for Scheme.	An Education, Employment and Skills Plan and an Inclusion Action Plan will be prepared as part of the Second Iteration EMP to increase the diversity of the workforce for the Scheme and to ensure that local people benefit from jobs created for Scheme.	N/A
ROAD DRAINAGE AND THE WATER ENVIRONMENT			
RDWE1	To mitigate potential adverse effects upon surface waters and groundwater during the construction phase	Construction activities must be managed in accordance with CIRIA Guidelines. Guidance on best practice in relation to pollution prevention and water management is set out in the following documents: <ul style="list-style-type: none"> • CIRIA's <i>Environmental good practice on site</i>⁸ • CIRIA's <i>Control of water pollution from linear construction projects; Technical Guidance</i>⁹ • Environment Agency's <i>Protect groundwater and prevent groundwater</i> 	3.8.1 – 3.8.4

⁸ Audus, Charles and Evans (2010) *Environmental Good Practice on Site* (Third Edition) (C692).

⁹ Murnane, Heap and Swain (2006) *Control of water pollution from linear construction projects; Technical Guidance*

Information from the REAC			Relevant Section of Pre-commencement Plan (where applicable)
REAC ID	Objective	Action or commitment	
		<p><i>pollution</i>¹⁰</p> <p>An Erosion and Sediment Management Plan and De-watering Management Plan is to be prepared as part of the Second Iteration EMP in accordance with the above guidance.</p>	
RDWE2	To mitigate potential adverse effects upon surface waters and groundwater during the construction phase	A Pollution Prevention Plan will be prepared to mitigate impacts to watercourses and groundwater. This plan will include pollution prevention measures (such as vehicle wash down prior to leaving works area and appropriate covers on vehicles) and emergency spill procedures. The Pollution Prevention Plan will be prepared in accordance with CIRIA Guidelines.	3.8.1 – 3.8.61
RDWE3	To mitigate potential adverse effects upon surface waters during the construction phase	An Erosion and Sediment Management Plan will be prepared to mitigate impacts to watercourses and groundwater. This plan will include measures such as silt curtains to mitigate sediment disturbance and smothering of gravel during construction.	3.8.1 – 3.8.61
RDWE4	To mitigate potential adverse effects upon surface waters and groundwater during the construction phase	Where possible, construction activities associated with watercourses (realignment and outfalls) will avoid being carried out during periods of flooding. An Emergency Response Plan for Flood Events will be prepared and included within the Second Iteration EMP.	3.7.1, 3.8.22
RDWE5	To mitigate potential adverse effects upon surface waters and groundwater during the construction phase	Site drainage, including for site compounds and material storage areas, will be designed to connect existing road/mains drainage network and would not directly discharge into environment. The construction drainage network will incorporate measures (for example interceptors) to prevent the discharge of hydrocarbons to surface or groundwater systems, as outlined within Appendix 13.4 (Drainage Strategy) of the ES Appendices [APP-179].	3.8.30 – 3.8.42
RDWE6	To mitigate potential adverse effects upon surface waters and groundwater during the construction phase	<p>Specific measures to be implemented to limit the impact of construction activities on the water environment include:</p> <ul style="list-style-type: none"> • All construction workers to be briefed on the importance of maintaining water quality, the location of surface water features, and the location and use of spill kits as part of the site induction. • In areas where there is increased risk of hydrocarbon / chemical spillage and around hazardous substance stores, additional precautions to be taken. These include bunding, impermeable bases, suitable drainage systems, and siting away from any open drainage channels. • Any stockpiled materials to be stored away from watercourses, and within enclosed areas to enable the runoff to be stored and treated where required. • It is advised that materials (including stockpiles) are located a minimum of 8 metres away from a watercourse to avoid unnecessary pollution run-off into the watercourses. • Any concrete works to be carefully controlled and where required, any concrete tankers will be washed out in controlled areas. • All plant and machinery to be maintained in a good condition and any maintenance required will be undertaken within safe areas. • Pollution prevention and spill response procedures (in the form of an Incident Control Plan) to be developed by the contractor and a spill kit and clean up equipment maintained on site. • Establishment of dedicated plant and wheel washing areas a minimum of 8m from any watercourse or surface water drain. • Manually operated penstocks to be provided immediately prior to all outfalls leading to a watercourse and upstream of attenuation pond flow control devices. • Methodology for correct storage and disposal of wastewater and pollutants to be detailed in the Pollution Prevention Plan. • Collection of run-off water in sumps, as well as recycle and reuse of water where possible 	3.8.1 – 3.8.62
RDWE7	To mitigate potential adverse effects upon surface waters and groundwater during the construction phase.	<p><u>Surface water monitoring</u></p> <p>Surface water monitoring to be carried out before, during, and after construction to ensure no adverse impact on water quality.</p> <p>Pre-construction monitoring to continue on a quarterly basis.</p> <p>Updates to be made to Appendix 13.5 (Surface Water Quality Monitoring Report) of the ES Appendices [APP-180] prior to construction to provide for monthly monitoring to be undertaken for the duration of the construction period, and for quarterly monitoring post-construction to be undertaken for the duration of one year.</p> <p><u>Groundwater monitoring</u></p> <p>Groundwater monitoring will be carried out pre-construction for at least 12 months. Groundwater monitoring to take place monthly during construction. Groundwater monitoring to be undertaken quarterly post-construction for the duration of one year.</p>	3.8.5 – 3.8.11
RDWE8	To prevent spread of INNS and contamination of surface waters during construction	An INNS Management Plan and Biosecurity Risk Assessment will be prepared prior to construction commencing, as outlined in row B10.	3.1.62
RDWE9	To mitigate potential adverse effects on private groundwater supplies during the	A "no derogation" agreement will be made with the owner/operator of any private groundwater supply impacted by dewatering, including those at Hall Farm (where there are 3 boreholes). This legal agreement will ensure that measures would be	3.1.13

¹⁰ Environment Agency (2017) *Protect groundwater and prevent groundwater pollution* [online] available at: [Protect groundwater and prevent groundwater pollution - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/614222/protect-groundwater-and-prevent-groundwater-pollution.pdf) (last accessed November 2023).

Information from the REAC			Relevant Section of Pre-commencement Plan (where applicable)
REAC ID	Objective	Action or commitment	
	construction phase.	taken to maintain a supply throughout the period in which the groundwater source was affected.	
RDWE10	To compensate for the loss of floodplain storage as a result of the Scheme	FCAs will be provided to compensate for the loss of floodplain storage, as outlined in the Appendix 13.2 (Flood Risk Assessment) of the ES Appendices [APP-177]. Prior to commencing any above ground works (including above ground pre-commencement works) there must be sufficient replacement floodplain storage in place to compensate for those works. The FCAs will require maintenance for the lifetime of the Scheme however at this stage maintenance details are not known. These details will be defined at the next stage of design.	3.7.2
RDWE11	To mitigate potential adverse effects of contaminated surface run-off during operation	A maintenance schedule and methodology (once the Scheme is operational) as set out by the Sustainable Drainage Systems (SuDs) manual should be followed, is outlined within the Appendix 13.4 (Drainage Strategy) of the ES Appendices [APP-179]. This is to maintain the integrity of the drainage system and reduce the risk of polluted run-off.	N/A
RDWE12	To mitigate potential adverse effects upon groundwater during the construction phase	As per commitment GS4 of this REAC, piling will be required during construction; As detailed in Chapter 9 (Geology and Soils) of the ES [APP-053], Piling Works Risk Assessments will be undertaken, if deemed necessary, prior to construction of the Scheme. In addition, method statements detailing piling operations will cover the potential to cause pollution to the underlying aquifer and potential mobilisation of contaminated soil.	N/A
RDWE13	To mitigate potential adverse effects upon surface water and groundwater during the construction phase	Necessary consents for the water environment (Flood Risk Activity Permit (FRAP), land drainage consents, and groundwater abstraction and water discharge) to be sought from the relevant authorities (Environment Agency and/or local authorities), where disapplication has not been granted, prior to construction. As detailed in the Scheme Consents and Agreement Position Statement [REP2-006].	3.8.12 – 3.8.15
RDWE 14	To mitigate potential adverse effects upon fluvial flooding during the construction phase	Stockpiles will be located on higher ground (i.e. outside Flood Zone 3) where practicable. The following applies to stockpiles located within Flood Zone 2/3: <ul style="list-style-type: none"> • Each stockpile will not exceed 40m in length. • There will be a minimum gap of 25m between adjacent stockpiles, except where both adjacent stockpiles are shorter, in which case the gap must be at least as long as the longest adjacent stockpile. Some stockpile lengths and associated gaps may only be 10m. • Gaps in the stockpiles will be located to preserve existing low points and flow paths. • Stockpiles should not exceed 10m above the existing ground level, and be less than 20m wide at the toe. Stockpiles to be seeded if they are to be retained for more than 2 months to encourage stabilisation of topsoil.	3.8.34 – 3.8.36
RDWE 15	To mitigate potential adverse effects upon surface water and fluvial flooding during the construction phase	Construction compounds will be located on higher ground (i.e. outside Flood Zone 3) where practicable. The following applies to construction compounds located within Flood Zone 2/3: <ul style="list-style-type: none"> • Any runoff from the compounds will be to the vegetated ground in line with SuDS principles. SuDS measures may include attenuation storage; infiltration trenches/soakaways. Where settlement or filtering is not practicable or effective, alternative disposal options would be considered for example, discharge onto a grassed/vegetated area (with consent from the landowner and following Environment Agency consultation). • At sites with bunds or other forms of visual / acoustic barriers, ensure appropriate gaps in the screening (or culverts through earth bunds where these are used). • Offices and other site facilities will be raised above the modelled 1 in 30 (3.3%) annual probability event level where modelled data are available. Where not available this would be estimated from the best available information. Facilities could be elevated on stilts. In some cases, site facilities are to be mobile and/or located on the higher areas of the compound so that stilts are not required. • Minimal storage of potential pollutants e.g. fuel, hazardous substances. 	3.8.30 – 3.8.42, 3.9.1 – 3.9.3
RDWE16	To mitigate for loss of riparian vegetation.	As shown on Figure 2.3 (Environmental Masterplan) of the ES Figures [AS-026], riparian vegetation will be reinstated along watercourses following completion of construction activities along those watercourses (i.e culvert extensions, watercourse realignments, and viaducts).	N/A
RDWE 17	To mitigate potential adverse effects of de-watering on waterbodies during construction.	A De-watering Management Plan will be prepared to outline the procedures and measures necessary to remove and manage water. Its purpose will include ensuring safe and dry working conditions, protecting the integrity of structures, minimising environmental impact, managing groundwater levels, preventing soil erosion, and complying with regulatory requirements. The plan will detail the methods for de-watering, monitoring protocols, emergency response strategies, and responsibilities of personnel involved in the process.	3.8.47 – 3.8.55
CLIMATE			
C1	To seek to reduce greenhouse gas (GHG) emissions as far as practicable during construction	A Carbon Management Plan will be completed based on the OCMP in Appendix B.6 of this First Iteration EMP in conjunction with the Second Iteration Environmental Management Plan and will include the following topics: <ul style="list-style-type: none"> • Assessment. • Procurement. • Materials and resource management on site. • Change process for low / zero carbon solutions. • Low / zero carbon plant and management. 	N/A

Information from the REAC			Relevant Section of Pre-commencement Plan (where applicable)
REAC ID	Objective	Action or commitment	
		<ul style="list-style-type: none"> • Construction techniques and competency. • Training matrix. 	
C2	To seek to reduce GHG emissions as far as practicable during construction and operation	During detailed design and construction, opportunities to further reduce emissions will be sought. These will follow on from the opportunities identified and captured within the Carbon Opportunities Log to date. Any progress or further opportunities will be captured within the Carbon Opportunities Log. Opportunities identified during the design and construction of the Scheme for operation will be captured within the Carbon Opportunities Log which will be updated by the PC and handed over to the maintenance provider to pursue as part of the Third Iteration EMP.	3.10.1 – 3.11.3
C3	Operational adaptive management for climate resilience	The operational Scheme is required to manage, maintain and monitor asset data to ensure the Scheme is operating as intended. Adaptive management will be employed during the operational period where it is necessary to adapt the asset management in response to climate impacts. Where appropriate additional interventions will be determined and implemented. During detailed design a detailed monitoring plan will be determined in line with the requirements for the Scheme and the planned operational procedures noted in Section 14.10 of Chapter 14 (Climate) of the ES [APP-058] which will feed into the Third Iteration EMP.	N/A
C4	As-built carbon assessment	Through detailed design and post construction carbon assessments will continue to both drive further reductions and provide the Applicant with the post construction data. This shall include as stated in DMRB LA114, 4.1 "Quarterly GHG emission returns required on projects during the construction and operation stages shall be reported in accordance with the Overseeing Organisation's requirements."	N/A
C5	Construction to be resilient to weather	Contingency plans to be put in place for extreme weather through construction, including for storms, high winds and flooding. In addition, provision of health safety and welfare plans for employees to reduce impacts from weather.	3.15.1

