

Planning Inspectorate
National Infrastructure Planning
Temple Quay House (2 The Square)
Temple Quay
Bristol
BS1 6PN

Our ref: NO/2022/114689/01-L01
Your ref: TR010062
Date: 2 September 2022

Dear Sir/Madam

**APPLICATION BY NATIONAL HIGHWAYS FOR AN ORDER GRANTING DEVELOPMENT CONSENT FOR THE A66 TRANS-PENNINE DUALLING PROJECT
RELEVANT REPRESENTATION ON BEHALF OF THE ENVIRONMENT AGENCY**

Please find enclosed the Relevant Representation on behalf of the Environment Agency in relation to the application for a development consent order for the A66 Trans-Pennine Dualling Project made by National Highways.

The Role of the Environment Agency

The Environment Agency has a responsibility for protecting and improving the environment, as well as contributing to sustainable development.

We have three main roles:

We are an **environmental regulator** – we take a risk-based approach and target our effort to maintain and improve environmental standards and to minimise unnecessary burdens on business. We issue a range of permits and consents.

We are an **environmental operator** – we are a national organisation that operates locally. We work with people and communities across England to protect and improve the environment in an integrated way. We provide a vital incident response capability.

We are an **environmental advisor** – we compile and assess the best available evidence and use this to report on the state of the environment. We use our own monitoring information and that of others to inform this activity. We provide technical information and advice to national and local governments to support their roles in policy and decision-making.

One of our specific functions is as a Flood Risk Management Authority. We have a general supervisory duty relating to specific flood risk management matters in respect of flood risk arising from Main Rivers or the sea.

Environment Agency
PO Box 519, South Preston, Lancashire, PR5 8GD.
Customer services line: 03708 506 506
www.gov.uk/environment-agency

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Outstanding information and issues of concern

Our Relevant Representation outlines where further work, clarification or mitigation is required to ensure that the proposal has no detrimental impact on the environment. Some of our comments raise concerns which we believe need to be addressed prior to a development consent order being granted. In other instances, it may be acceptable for additional information to be provided later.

National Highways seeks to compulsorily acquire land that the Environment Agency has an interest in as part of the DCO. Please note that pending further discussions with National Highways, our Relevant Representation should be regarded as an objection to the acquisition of any land in which we have an interest by way of the DCO.

As requested in your letter dated 29 July 2022, we have prepared a Principal Areas of Disagreement Summary Statement. This is enclosed at Annex 1.

Our Relevant Representation is enclosed at Annex 2. Where we have suggested revised wording, any text from a DCO application document has been added in *italics*, wording that we suggest is added is highlighted by *red* text and wording that we suggest is removed is highlighted by ~~strikethrough~~ text. We will continue to discuss proposed changes to wording within DCO documentation with National Highways as the Examination progresses. Any changes we have suggested may need to be revised further in response to those discussions.

Depending on the outcome of our ongoing discussions with National Highways, we may recommend the addition of Requirement(s) to the DCO if we consider that they are necessary to address an issue or concern that we may have.

Please do not hesitate to contact me if you require any further information. We look forward to continuing to work with National Highways to resolve the matters outlined in this response and to ensure the best environmental outcome for this project.

Yours faithfully

Philip Carter
Planning Officer - Sustainable Places

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Annex 1: Principal Areas of Disagreement Summary Statement
Annex 2: Environment Agency Relevant Representations

Annex 1: Principal Areas of Disagreement Summary Statement

The principal issue in question	The brief concern held by Environment Agency which will be reported on in full in WR / LIR	What needs to; <ul style="list-style-type: none"> • change, or • be included, or • amended so as to overcome the disagreement	Likelihood of the concern being addressed during Examination
We have not yet agreed that the baseline hydraulic modelling used to inform the Flood Risk Assessment (FRA) is fit for purpose.	We have undertaken an initial review of the hydraulic models used to inform the FRA for each scheme. Our reviews have identified various issues that need to be addressed before we can agree that the baseline models are fit for purpose and that the conclusions of the FRA are based on an appropriate evidence base.	National Highways needs to demonstrate to us that they have satisfactorily addressed the issues we have identified in our hydraulic model review for each of the proposed Schemes.	High likelihood
The Environment Agency is currently not able to agree to disapplication of the Environmental Permitting Regulations 2016 in relation to flood risk activity permits. S150 Planning Act provides that the Environment Agency must consent to the inclusion of any provision within the DCO for the disapplication of any permits that it issues.	We need to have sufficient control over works that fall within the flood risk permitting regime via agreed protective provisions if we are to agree to disapplication.	National Highways needs to work with us to agree an acceptable suite of protective provisions if we are to agree to disapplication.	High likelihood
The Environmental Management Plan (EMP) proposes a new approach to agreeing a range of details and documents post-DCO approval.	The Statutory Environmental Bodies (Natural England, Environment Agency and Historic England) share general concerns over the National Highways self-approval process as there are many elements of the project still to be	Further clarification is needed as to what the approach will entail to enable a fuller assessment of the proposals against our respective statutory remits. We will all continue engage with National Highways to	High likelihood

	worked up.	work through and advise on these.	
National Highways seek to acquire various parcels of land in which the Environment Agency has an interest.	We are in the process of reviewing the details provided in the Book of Reference so at this stage, we are unable to confirm that there are no objections to the acquisition of any land in which we have an interest	If any concerns are identified, we will discuss with National Highways what actions are required resolve them.	High likelihood
Our review of the Environmental Management Plan (EMP) and supporting information has identified several queries.	We've identified a range of issues with aspects of the EMP and supporting documents (see relevant representations). Concerns include: a) process for consulting on material post DCO approval b) minimum requirements / standards proposed for some measures c) areas where we consider further information is necessary to satisfy EMP requirements	National Highways needs to update the EMP and supporting documents based on our advice unless they can satisfactorily demonstrate to us why our advice does not necessitate any changes.	High likelihood
Our review of the Project Design Principles (PDP) and has identified several queries.	We've identified a range of issues with aspects of the PDP in relation to the wording or content of the general and scheme specific design principles.	National Highways needs to update the PDP based on our advice unless they can satisfactorily demonstrate to us why our advice does not necessitate any changes.	High likelihood
The Environmental Statement says that the assessment of flood risk has taken account of the latest climate change allowances	We know that the latest EA guidance on climate change peak rainfall levels has not informed the assessment of flood risk	Needs to be acknowledged clearly that latest EA guidance has not been applied in full but that as the modelling is updated post DCO, it will be applied at that stage.	High likelihood
Our review of the	There are several	To address our	High

<p>Environmental Statement (ES) and supporting information has identified several queries</p>	<p>omissions or errors that require attention and some of the conclusions made within the associated appendices require further explanation to assist our understanding of what has been presented.</p>	<p>concerns, National Highways needs to update the material based on our comments unless they can satisfactorily demonstrate to us why our advice does not necessitate any changes and does not affect the conclusions of the ES.</p>	<p>likelihood</p>
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Annex 2: Environment Agency Relevant Representations

2.1: Understanding the DCO document (Rev 1; dated 13/06/2022)

2.5.1	<p>Issue For National Highways to depart from the approved Design Principles Document (DPD) requires approval from the Secretary of State after they consult with the relevant local authority. No consultation with other relevant consultees is required.</p> <p>Impact The significance of any environmental impacts of a detailed design that deviates from the approved DPD may be unknown.</p> <p>Suggested solution Further engagement between National Highways and us to identify alternative wording to address this concern.</p>
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2.7: Environmental Management Plan (Rev 1; dated 13/06/2022)

General	<p>Issue The Statutory Environmental Bodies (Natural England, Environment Agency and Historic England) share general concerns over the National Highways self-approval process as there are many elements of the project still to be worked up.</p> <p>Impact The self-approval process may pose a risk of detrimental impacts to the environment without sufficient regulatory review.</p> <p>Suggested solution We will all continue to engage with National Highways to work through and advise on the proposed self-approval process and seek further clarification as to what the National Highways self-approval process will entail to enable a fuller assessment of the proposals against our respective statutory remits.</p>
General	<p>Issue The Environmental Management Plan (EMP) includes words or phrases which could be ambiguous in relation to the expected mitigation requirements, for example “<i>where appropriate</i>”, “<i>where reasonably practicable</i>” etc.</p> <p>Impact There is the potential for ambiguity in relation to securing</p>

	<p>mitigation measures that are necessary to protect the environment.</p> <p>Suggested solution Review the wording of the EMP to avoid ambiguity and uncertainty in relation to identifying and securing mitigation measures necessary to protect the environment as part of the proposed development.</p>
General	<p>Issue The EMP is supported by a range of supporting documents that have been provided in draft form, but which will require further refinement and detail as more information becomes available and engagement with relevant stakeholders continues.</p> <p>Impact There is limited information available to allow us to comment in detail on the proposed EMP supporting documents.</p> <p>Suggested solution National Highways should continue to engage with us to allow them to refine the content of documents relevant to our remit as outlined in EMP Table 1-1 Consultation requirements for specified commitments.</p>
General	<p>Issue There is no specific requirement to secure detailed flood risk modelling and mitigation where temporary construction works within flood risk areas are unavoidable.</p> <p>Impact The flood risk impacts of temporary construction works will not be understood or managed effectively.</p> <p>Suggested solution A new site-wide requirement should be added, or an existing requirement should be modified to ensure sufficient assessment and investigations are undertaken to support temporary construction works that must take place within flood risk areas.</p>
1.4.20 1.4.26	<p>Issue The proposed consultation procedure identified in the EMP does not include any provision for consultees to request and agree extensions to the consultation and we have concerns that the approach being taken may exert challenging demands upon us that would be difficult to service.</p> <p>Impact An inflexible process may not allow sufficient time for consultees to determine whether submissions pose a risk of harm to the environment.</p> <p>Suggested solution The procedure should be revised to include the ability for consultees to ask National Highways if they would agree to an extension where it is reasonable to do so, such as during incident</p>

	<p>response work or where resource constraints limit how much we can engage on the proposals.</p>
1.4.26	<p>Issue In accordance with the process proposed in the EMP, the proposed consultation procedure allows for one period of re-consultation with consultees before National Highways can determine a submission. However, there is no mechanism to allow for further consultation or discussion before a decision is made should any consultee concerns remain unresolved.</p> <p>Impact Consultees may identify concerns with submissions that are not resolved prior to determination leading to detrimental impacts for the environment.</p> <p>Suggested solution Where consultee concerns remain unresolved after the second period of consultation, the consultees should make it clear whether their concerns can be resolved and if so, explain how to give National Highways an opportunity to a) update the submission or b) justify why they do not need comply with the consultee’s advice. All opportunities to resolve concerns should be exhausted before a decision is made.</p>
Table 2-2: (Page 2.7-19 of 89)	<p>Issue The role of Environment Manager(s) includes the following duty, but there is no requirement to self-report any transgressions / incidents to relevant regulators</p> <ul style="list-style-type: none"> • <i>Keep a record of all activities on site, environmental problems identified, transgressions noted, and a schedule of all remedial tasks undertaken.</i> <p>Impact In the absence of a requirement to self-report any incidents, harm to the environment may arise where relevant authorities should be notified.</p> <p>Suggested solution Amend the role to include the following:</p> <ul style="list-style-type: none"> • <i>Keep a record of all activities on site, environmental problems identified, transgressions noted, and a schedule of all remedial tasks undertaken. The Environment Agency, Natural England and / or other relevant regulatory authorities will be notified where appropriate, having regard to the nature and scale of the incident.</i>
Table 2-2: (Page 2.7-20)	<p>Issue The role of Ecological Clerk(s) of Work(s) has no duty to self-report any transgressions / incidents to the relevant regulators.</p>

of 89)	<p>Impact In the absence of a requirement to self-report any incidents, harm to the environment may arise where relevant authorities should be notified.</p> <p>Suggested solution Add the following requirement to the ECOW role:</p> <ul style="list-style-type: none"> • <i>Ensure that any environmental problems identified, or transgressions noted, are reported to the Environmental Manager(s) so that where appropriate the Environment Agency, Natural England and / or other relevant regulatory authorities will be notified, having regard to the nature and scale of the incident.</i>
D-GEN-08	<p>Issue There is no requirement to locate construction works outside areas at high risk of flooding where possible.</p> <p>Impact Construction works may be unnecessarily located in areas at a high risk of flooding.</p> <p>Suggested solution Update D-GEN-08 to ensure temporary compounds, haul routes and storage areas avoid areas at a high risk of flooding flooding where possible:</p> <p><i>Compound locations, haul routes and storage areas will be selected to avoid designated sites, and be as far away from sensitive receptors as reasonably practicable (for example local residential properties, priority habitats and known locations of protected species, areas at risk of flooding (those in Flood Zone 3))</i></p>
D-GEN-08	<p>Issue There is no requirement to incorporate necessary lighting control measures, e.g. avoiding lighting of rivers, aquatic habitats, etc.</p> <p>Impact Uncontrolled lighting could detrimentally impact upon the aquatic environment.</p> <p>Suggested solution Update D-GEN-08 to include a commitment to ensure any lighting required during construction includes necessary control measures to avoid impacts on aquatic species and habitats.</p>
D-GEN-08	<p>Issue There is a requirement for hoarding and fencing in Flood Zone 3 to be permeable to flood flows but there is no reference to how other construction works that may be necessary in areas at a high risk of flooding will be managed, for example temporary buildings within compounds, access tracks, storage areas etc.</p>

	<p>Impact Some construction features may be at risk of or increase the risk of flooding elsewhere without suitable management / mitigation</p> <p>Suggested solution Update D-GEN-08 requirement to incorporate broader flood risk management controls:</p> <ul style="list-style-type: none"> • Temporary development associated with construction shall avoid areas at risk of flooding (those in Flood Zone 3) where possible. Where features (including but not limited to hoarding and fencing, access tracks, compounds and storage areas, temporary buildings) must be in areas at a high risk of flooding, National Highways will demonstrate that the fluvial floodplain and areas liable to other sources of flooding continue to function effectively for storage and conveyance of floodwater without increasing risk elsewhere.
D-BD-04	<p>Issue The action is not specific enough in relation to Trout Beck, i.e. it is not just necessary that new watercourse crossings are open span across the river, it needs to ensure the minimum number of piers with no embankments across the whole floodplain. The foundation type/depth of piers on Trout Beck floodplain should be designed such that no modifications/new revetment will be required in the long term if the river migrates, and the pier(s) become(s) located within the river channel.</p> <p>Impact The action does not specify all the measures necessary to avoid any impact on the aquatic environment.</p> <p>Suggested solution Update D-BD-04 to refer to additional requirements:</p> <p><i>New watercourse crossings of the SAC (Trout Beck) shall be open span and the length of the crossing minimised to avoid reduced impacts on the aquatic environment and allow natural river processes to continue, unless otherwise agreed with Natural England and the Environment Agency. The crossing will utilise the minimum number of piers with no embankment across whole floodplain. The foundation type/depth of piers on Trout Beck floodplain will be designed such that no modifications/new revetment would be required in the long term if the river migrates, and the pier(s) become(s) located within the river channel. In addition to the Trout Beck viaduct, the majority (five out of six) of new watercourse crossings of functionally linked watercourses in the Appleby to Brough scheme shall also be open span, unless otherwise agreed with Natural England and the Environment Agency. These are specified in the ES Chapter 6:</i></p>

	<i>Biodiversity.</i>
D-BD-04	<p>Issue In relation to the reference to the use of culverts, there is a lack of detail regarding the necessary design detail.</p> <p>Impact The absence of detail to support culvert design may lead to culverts that lead to detrimental impacts on the aquatic environment.</p> <p>Suggested solution Update D-BD-04 to refer to additional requirements: <i>Where culverts are used, they shall be bottomless (or sunk/inverted 30cm below natural bed level to allow natural substrate to be deposited) and aim to maintain natural bank features. Culverts should also comply with the Institute of Fisheries Management - Fish Passage Manual taking account of other factors including but not limited to maximum gradient, minimum pipe diameter, maximum drop at intake and outfall etc having regard to relevant fish species and the length of the culvert.</i></p>
D-BD-05	<p>Issue The action requires that some habitats, including waterbodies and watercourses, be replaced with two for each one lost. It is not clear how a watercourse could be replaced on a two for one basis.</p> <p>Impact If the mitigation requirements are undeliverable, there is the potential for harm to the aquatic environment because of the proposed development.</p> <p>Suggested solution Update D-BD-05 to ensure that requirements for mitigating for the loss of aquatic features on a two for one basis are clear and deliverable.</p>
MW-BD-02	<p>Issue It is stated that fish and crayfish translocations will be required where an entire channel is dewatered, however fish and crayfish translocations will be required if <u>any</u> part of the channel is dewatered. Translocations will also be needed if an in-river work area is to be contained/bunded but not dewatered – unless agreed with the Environment Agency given the risk of pollution/ disturbance/risk of direct harm in contained in-river work areas.</p> <p>Impact Fish and crayfish will be detrimentally impacted by the development if they are not translocated when works within the channel require it.</p> <p>Suggested Solution Update MW-BD-02 as follows:</p>

	<p>Dewatering of <i>any part of the entire</i> channel of any watercourse will be avoided where reasonably practicable.</p> <p>If <i>evidence demonstrates that</i> dewatering cannot be avoided:</p> <ul style="list-style-type: none"> • All fish (including juvenile lamprey that live in marginal sediments) will be translocated prior to dewatering works. • Prior to dewatering or intrusive in-channel works, all crayfish present shall be translocated by a suitably licenced white-clawed crayfish surveyor. • <i>Translocations will also be needed if an in-river work area is to be contained/bunded but not dewatered</i> <p>Methods and translocation sites shall be confirmed following consultation with Natural England and the Environment Agency.</p>
MW-BD-03	<p>Issue The action includes a requirement to ensure any in channel works are sensitively timed, but there is no reference to when that is.</p> <p>Impact In river works at inappropriate times could pose a risk of harm to aquatic species and habitats.</p> <p>Suggested solution Update MW-BD-03 to ensure that sensitively timed in river works should avoid 1st October to 15th June, unless there is information confirming there are no fish in the watercourse or Environment Agency/Natural England agree to works during this period, dependent on the exact location and type of in-river work. Where there is a proposal for in-river working in the spawning season, it is recommended that two redd (fish nest) surveys are carried out in Nov and Dec or Jan. This would provide information to allow an informed decision as to whether works could be continued into the spawning season.</p>
MW-BD-15	<p>Issue This action makes no reference to the need for a HRA to assess the Method of Works (as well as the permanent works).</p> <p>Impact The impacts of the works on the River Eden SAC and functionally linked habitats will not be adequately assessed in the absence of a HRA.</p> <p>Suggested solution Update MW-BD-15 to ensure the need for a HRA is referenced.</p>

D-GS-01	<p>Issue There is no reference to the requirement to identify maximum stockpile heights in the Materials Management Plan as stated in document 2.9 Mitigation Schedule (Rev 1; dated 13/06/2022).</p> <p>Impact Unrestricted stockpile heights may have an impact on local environmental quality.</p> <p>Suggested solution Update D-GS-01 to include clear reference to the need to identify maximum stockpile heights.</p>
D-GS-03	<p>Issue The River Eden SAC is also designated for its geomorphological interest.</p> <p>Impact There is the potential for detrimental impacts on the River Eden SAC geomorphological interest features if they are not identified.</p> <p>Suggested solution Update D-GS-03 to include the River Eden SAC which is also designated for its geomorphological interest.</p>
D-RDWE-01	<p>Issue In relation to the management of surface water during construction, detention basins / drainage ponds that are designed for the operational phase of the scheme should not be relied upon to deal with the large volumes of contaminated water that are associated with construction phase activities.</p> <p>Impact Detention basins / drainage ponds not designed to accommodate flows during the construction phase may increase the risk of pollution incidents and impacts upon the water environment.</p> <p>Suggested solution It is recommended that dedicated sediment traps and settlement ponds should be designed into the scheme for the construction phase and where these are unlikely to be effective, treatment systems such as lamella tanks and chemical dosing should be costed into the scheme.</p>
D-RDWE-01	<p>Issue The action proposes that “<i>water abstracted through dewatering shall be discharged to the same groundwater catchment and downgradient of the dewatered element</i>”.</p> <p>Impact Dewatering discharged to the same groundwater catchment downgradient of the dewatered element may lead to some local stretches of watercourses being impacted through flow depletion.</p>

	<p>Suggested solution Water abstracted through dewatering may need to be discharged on a more refined local scale if it is to be used as potential mitigation against flow depletion in watercourses so update D-RDWE-01 to reflect this and make it clear that an abstraction licence or licences will be required from the Environment Agency for this.</p>
D-RDWE-06	<p>Issue Having regard to our comments on the hydrogeological impact assessment methodology paragraph 14.6.8.5, the list of Ground Water Dependent Terrestrial Ecosystem (GWDTE) might need to be widened.</p> <p>Impact The proposed development may have potential adverse impacts on GWDTEs not currently identified.</p> <p>Suggested solution Alternative methods of assessing the zone of influence of dewatering activities may be required to satisfy the requirements of D-RDWE-06.</p>
D-RDWE-08	<p>Issue There is no reference to any consultation with the Environment Agency in relation to agreeing the scope and extent of site-specific measures required to mitigate the impacts of the detailed design in relation to WFD impacts.</p> <p>Impact The scope and extent of site-specific measures necessary to mitigate the WFD impacts of the development may not be adequate.</p> <p>Suggested solution Update D-RDWE-08 to ensure the Environment Agency is consulted on the scope and extent of site-specific mitigation required in relation to WFD impacts based on survey and assessment of the detailed design.</p>
D-RDWE-09	<p>Issue The additional surveying to be undertaken at the detailed design stage will need to include licensed abstractions as it has been established that some will be impacted (Hydrogeological Impact Assessment paragraph 14.6.8.53).</p> <p>Impact Potential for unacceptable impacts on licensed abstractions without mitigation being provided.</p> <p>Suggested solution Update D-RDWE-09 to ensure both licenced and unlicenced surface and ground water abstractions will be included in the further surveys.</p>
MW-RDWE-	<p>Issue The western end of the A66 project (as far as Brough) lies almost</p>

09	<p>entirely on Penrith sandstone, i.e. non calcareous. Use of limestone may be an issue on Schemes as far as Brough for any temporary stone imports e.g. for tracks/piling platforms or in areas where there is likely to be significant run off through the stone. It will likely depend on volumes of stone, size of stone and proximity to sensitive receptors as to whether this is an issue.</p> <p>Impact Potential detrimental impacts on watercourses associated with run-off through limestone imports.</p> <p>Suggested solution Update MW-RDWE-08 to ensure that it states that limestone will not be imported to be used on Schemes 1, 2, 3, 4, 5 and 6 without Natural England and/or Environment Agency agreement.</p>
MW-RDWE-09	<p>Issue The action does not make it clear that temporary watercourse crossings should generally be clear span bridges. Where temporary culverts are used, the crossing should comply with the Institute of Fisheries Management Fish Pass Manual for new culverts unless otherwise agreed with the Environment Agency. Temporary in-river crossings will not be placed or removed during the fish spawning season (generally 1st Oct to 15th June).</p> <p>Impact In the absence of guidance regarding temporary watercourse crossings, there is the potential for inappropriate solutions to be proposed that will detrimentally impact upon the water environment.</p> <p>Suggested solution Update MW-RDWE-09 to ensure requirements for temporary watercourse crossings are clear.</p>

2.7 Environmental Management Plan Annex B7 Ground and Surface Water Management (Rev 1; dated 13/06/2022)

B7.2.2	<p>Issue We are not aware of an Internal Drainage Board (IDB) regulating works on land relevant to the scheme.</p> <p>Impact Incorrect understanding of regulatory roles could lead to detrimental impacts on the environment because of the proposals.</p> <p>Suggested solution Update this section to refer to Lead Local Flood Authority (LLFA) who have a regulatory remit under S23 of the Land Drainage Act 1991, for work that would normally require Ordinary</p>
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	Watercourse Flood Defence Consent (OWFDC).
B7.5.2	<p>Issue The mandatory conditions for working within flood zones need to be expanded as they are not sufficiently precautionary and need to be developed further to reflect and address the individual and unique flood risks around the different construction areas on the scheme.</p> <p>Impact Mitigation to minimise the risk of working in flood zones during the construction phase is inadequate.</p> <p>Suggested solution Additional conditions for working within flood zones shall include (but not be limited to)</p> <ul style="list-style-type: none"> • Provide inductions and toolbox talks for construction teams in areas identified as being at risk of flooding. • Ensure that construction teams are aware of the source, nature, onset and duration of potential flooding
B7.5.4- B7.5.7	<p>Issue We support the use of Environment Agency Forecasts, Flood Alerts and Warnings, but any high risk works in flood risk areas should also be registered of our Flood Warning Duty Officers List of Works and Defects system (or Schedule 8 register) for their duration. Our 24/7 duty team will directly call the relevant responsible person(s) listed on our Schedule 8 register to provide early warnings, which would include Heavy Rainfall Alerts (HRAs) in and out of normal working hours.</p> <p>Impact The flood warning and alert arrangements currently proposed may not allow the issue to be managed in the most effective way.</p> <p>Suggested solution Update the proposals to refer to adding high risk works to the Environment Agency Flood Warning Duty Officers List of Works and Defects system (or Schedule 8 register) liaising with the Environment Agency Flood Incident Management Team to add any high risk works to the Schedule 8 register.</p>
B7.6.1	<p>Issue We do not recognise the 7 metre and 9 metre offset distances referred to with reference to main river and they do not align with the Environmental Permitting (England and Wales) Regulations 2016 or standard Environment Agency protective provisions.</p> <p>Impact Risk of detrimental impacts to the environment where regulatory requirements are not understood.</p>

	<p>Suggested solution Update this section having regard to Schedule 25 of the Environmental Permitting (England and Wales) Regulations 2016 and the Environment Agency protective provisions to be agreed within the DCO.</p>
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2.7: Environmental Management Plan Annex B15 Invasive Non-Native Species (Rev 1; dated 13/06/2022)

<p>General</p>	<p>Issue There is a potential risk of importing aquatic plant species (for SUDS ponds, new ditches etc) from sources that could be contaminated by alien crayfish/crayfish plague. If possible and practicable, an additional section within the INNS management plan should be added to address this.</p> <p>Impact The importation of plant species from sources that could be contaminated by alien crayfish/crayfish plague has the potential to detrimentally impact upon the aquatic environment.</p> <p>Suggested solution Update the INNS management plan to identify and manage this potential risk.</p>
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2.7 Environmental Management Plan Annex C1 Working in and near SAC Method Statement (Rev 1; dated 13/06/2022)

<p>C1.3.1</p>	<p>Issue The works associated with the crossing over Trout Beck in the Temple Sowerby to Appleby scheme are incorrectly described. Reference is made to the use of a multi-span bridge solution with “<i>multiple piers located in the Trout Beck</i>” but no piers should be constructed in Trout Beck.</p> <p>Impact The construction of piers within Trout Beck would have a detrimental impact on the River Eden SAC.</p> <p>Suggested solution The description of the works over Trout Beck should be corrected as follows:</p> <p><i>As part of the Temple Sowerby to Appleby scheme, there is the requirement to construct a large overbridge over the Trout Beck, using a</i></p>
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	<p>multi-span solution with multiple piers located <i>within the floodplain of in the Trout Beck to cover a distance of approximately 400m (in order to prevent disruption of flood flows and geomorphological processes).</i></p>
C1.3.1	<p>Issue The works associated with the Appleby to Brough scheme identify a requirement “<i>to construct single span viaducts over the tributaries of the Trout Beck, which include the Moor Beck and Cringle Beck</i>”, however Moor Beck and Cringle Beck are not tributaries of Trout Beck.</p> <p>Impact The use of inaccurate information may lead to incorrect conclusions about potential environmental impacts.</p> <p>Suggested solution The description of the works in the Appleby to Brough scheme should be corrected:</p> <p><i>For the Appleby to Brough scheme there is a requirement to construct single span viaducts over the tributaries of the Trout Beck, which include the Moor Beck and Cringle Beck. Land has also been identified in the area of the Moor Beck and Cringle Beck for Flood Compensation areas to be provided based on final design details to be agreed with the Environment Agency and Cumbria County Council (as Lead Local Flood Authority) as required.</i></p>
C1.3.8	<p>Issue It is stated that temporary haul roads across the floodplain will be constructed of clean stone or suitable alternative, but this conflicts with EMP Action MWRDWE-09 which states that “<i>Temporary infrastructure would avoid the introduction of foreign sediments into the floodplain or watercourses by using modular metal folding roads/grids rather than imported materials, so to not impact the geomorphology of the sensitive area</i>”.</p> <p>Impact There is the risk of detrimental impacts on the geomorphology of watercourses by using imported materials.</p> <p>Suggested solution C1.3.8 must be updated to ensure it is consistent with EMP Action MWRDWE-09 and imported materials will not be used to construct temporary infrastructure within the floodplain.</p>
C1.3.8 – C1.3.9	<p>Issue It is stated that works within the floodplain would avoid building up materials to ensure flood flows can operate as normal, however there is not mention of managing flood storage in the floodplain.</p> <p>Impact No mitigation proposed for the potential loss of flood storage in the</p>

	<p>floodplain as part of any temporary works.</p> <p>Suggested solution Include wording on floodplain storage and reference to how other work streams and documents being developed will assess and devise any necessary mitigation for loss of flood storage.</p>
<p>C1.3.10</p> <p>C1.3.11</p>	<p>Issue There is no reference to the fact that the pier foundations will be located on the floodplain, but they will be designed to be structurally sound if the river moves. If the piers become located within a watercourse, there is an expectation that there would be no need for revetting the river to prevent lateral movement.</p> <p>Impact It is not clear that the construction activities within the floodplain seek to avoid long-term detrimental impacts to the water environment.</p> <p>Suggested solution Update these sections to confirm that the design of the pier foundations will be such that they are structurally sound in the event of movement of river channels.</p>
<p>C1.4.15</p>	<p>Issue We support the use of Environment Agency Forecasts, Flood Alerts and Warnings, but any high risk works in flood risk areas should also be registered of our Flood Warning Duty Officers List of Works and Defects system (or Schedule 8 register) for their duration. Our 24/7 duty team will directly call the relevant responsible person(s) listed on our Schedule 8 register to provide early warnings, which would include Heavy Rainfall Alerts (HRAs) in and out of normal working hours.</p> <p>Impact The flood warning and alert arrangements currently proposed may not allow the issue to be managed in the most effective way.</p> <p>Suggested solution Update the proposals to refer to adding high risk works to the Environment Agency Flood Warning Duty Officers List of Works and Defects system (or Schedule 8 register) liaising with the Environment Agency Flood Incident Management Team to add any high risk works to the Schedule 8 register.</p>
<p>C1.4.27</p>	<p>Issue It is stated that <i>“the construction footprint of the Trout Beck crossing, and crossings of its functionally linked tributaries will be reinstated as soon as practicable following completion of the crossing works”</i>. If this refers to the Moor Beck and Cringle Beck, they are not tributaries of Trout Beck.</p> <p>Impact The use of inaccurate information may lead to incorrect</p>

	<p>conclusions about potential environmental impacts.</p> <p>Suggested solution The description of the works in the Appleby to Brough scheme should be corrected:</p> <p><i>The construction footprint of the Trout Beck crossing, and crossings of its other watercourses functionally linked to the River Eden SAC tributaries will be reinstated as soon as practicable following completion of the crossing works.</i></p>
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2.7 Environmental Management Plan Annex C2 Working in Watercourses Method Statement (Rev 1; dated 13/06/2022)

C2.2.15	<p>Issue The works associated with the crossing over Trout Beck in the Temple Sowerby to Appleby scheme are incorrectly described. Reference is made to the use of a multi-span bridge solution with “<i>multiple piers located in the Trout Beck</i>” but no piers should be in Trout Beck.</p> <p>Impact The construction of piers within Trout Beck would have a detrimental impact on the River Eden SAC.</p> <p>Suggested solution The description of the works over Trout Beck should be corrected as follows:</p> <p><i>As part of the Temple Sowerby to Appleby scheme, there is the requirement to construct a large overbridge over the Trout Beck and its associated floodplain, using a multi-span solution with multiple piers located within the floodplain of in the Trout Beck to cover a distance of approximately 400m in order to prevent disruption of flood flows and geomorphological processes.</i></p>
C2.4.7	<p>Issue Temporary works are identified as being at risk during potential flood events. Temporary works design needs to be assessed for suitability for given location and temporary works should be subject to hydraulic modelling to understand likely depth and velocity changes compared to baseline flood risk.</p> <p>Impact Flood risk to temporary works will present a danger of damage and environmental impacts and potentially increased flood risk elsewhere.</p> <p>Suggested solution Update C2.4.7 to make it clear that the risk of</p>

	<p>flooding to temporary works activities is fully assessed and mitigated having regard to hydraulic modelling to understand likely depth and velocity changes compared to baseline flood risk.</p>
C2.4.11	<p>Issue Where drainage is designed to tie into existing outfalls, the location and suitability of these existing structures for the lifetime of the development needs to be considered.</p> <p>Impact Existing outfalls that are not of an appropriate size or outfalls in poor condition may create increased flood risks associated with the proposed development.</p> <p>Suggested solution Update C2.4.11 to require the condition and size of existing outfalls to be assessed where they are proposed to be utilised as part of the proposed drainage network to ensure they are suitable and do not need to be replaced. Existing structures should be replaced or upgraded where investigations determine it is necessary based on the condition and / or size of the structure.</p>

2.7 Environmental Management Plan Annex D Emergency Procedures (Rev 1; dated 13/06/2022)

General	<p>Issue We note that in Appendix A – Environmental Incident Action Sheets, the triggers determine a de minimis and selective approach to notifying us of environmental incidents using qualitative rather than quantitative criteria.</p> <p>Impact There is a danger that environmental incidents may be reported by third parties, but not by National Highways or their contractors which may lead to erosion of trust and enforcement action.</p> <p>Suggested solution Consider the points made around the wording and setting the levels for reporting at a more open and precautionary level and allow satisfactory and open self-reporting to relevant regulatory authorities. Avoid the use of triggers that require a judgment over the scale of the event, e.g. deciding the “likelihood” of a spillage entering controlled waters or deciding what a “large volume” of silty runoff should be.</p>
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2.9 Mitigation Schedule (Rev 1; dated 13/06/2022)

<p>Chapter 7: Climate (Application Document 3.2) Section 7.9.11 - 7.9.17; 7.10.31 - 7.10.33; 7.10.38 - 7.10.43</p>	<p>Issue The mitigation measure is incorrectly linked to EMP REAC Ref D-CL-03, which does not exist.</p> <p>Impact Lack of clarity over the appropriate mitigation measures may result in detrimental impacts on the environment.</p> <p>Suggested solution Update the measure to ensure it is linked to EMP REAC Ref D-CL-01.</p>
<p>Chapter 11: Material Assets and Waste (Application Document 3.2) Section 11.8.41-11.8.44</p>	<p>Issue The mitigation measure is incorrectly linked to EMP REAC Ref D-GS-02 (Soils Waste Management Plan).</p> <p>Impact Lack of clarity over the appropriate mitigation measures may result in detrimental impacts on the environment.</p> <p>Suggested solution Update the measure to ensure it is linked to EMP REAC Ref D-GS-01 (Materials Waste Management Plan).</p>
<p>Chapter 14: RDWE (Application Document 3.2) Section 14.8.4</p>	<p>Issue The mitigation measure is incorrectly linked to Project Design Principle (PDP) Reference LI18.</p> <p>Impact Lack of clarity over the appropriate mitigation measures may result in detrimental impacts on the environment.</p> <p>Suggested solution Update the measure to ensure it is linked to PDP Ref LI17.</p>
<p>Chapter 14: RDWE (Application Document 3.2) Section 14.8.6</p>	<p>Issue The mitigation measure is incorrectly linked to Project Design Principle (PDP) References 0405.12 and 06.08.</p> <p>Impact Lack of clarity over the appropriate mitigation measures may result in detrimental impacts on the environment.</p> <p>Suggested solution Update the measure to ensure it is linked to PDP Ref</p>

	0405.11 and 06.07.
Chapter 14: RDWE (Application Document 3.2) Section 14.8.17	<p>Issue The mitigation measure is incorrectly linked to Environmental Management Plan (EMP) REAC Ref MW-RDWE-12.</p> <p>Impact Lack of clarity over the appropriate mitigation measures may result in detrimental impacts on the environment.</p> <p>Suggested solution Update the measure to ensure it is linked to EMP REAC Ref MW-RDWE-09.</p>
Chapter 14: RDWE Section 14.8.83, 14.8.84 and 14.8.85 Chapter 9: Geology and Soils Section 9.10.50 and Table 9-35 (Application Document 3.2) ES Appendix 14.2: Flood Risk Assessment and Outline Drainage Strategy (Application Document 3.4)	<p>Issue The mitigation measure is incorrectly linked to Project Design Principle (PDP) Reference 0405.12.</p> <p>Impact Lack of clarity over the appropriate mitigation measures may result in detrimental impacts on the environment.</p> <p>Suggested solution Update the measure to ensure it is linked to PDP Ref 0405.11.</p>

3.2 Environmental Statement Chapter 2 The Project (Rev 1; dated 13/06/2022)

2.5.30

Issue We understood that the latest EA guidance in relation to the climate change peak rainfall allowances had not been used, although the latest values have been used in a sensitivity analysis within the Flood Risk Assessment (FRA).

Impact The impacts on flood risk associated with the latest climate change allowances for peak rainfall levels are uncertain.

Suggested solution Ensure that detailed design is based on updated modelling that takes account of the [latest EA climate change guidance for peak rainfall allowances](#).

3.2 Environmental Statement Chapter 7 Climate (Rev 1; dated 13/06/2022)

Table 7-3
(Page 7-16
of 92)

7.10.16

Issue We understood that the latest EA guidance in relation to the climate change peak rainfall allowances had not been used, although the latest values have been used in a sensitivity analysis within the Flood Risk Assessment (FRA).

Impact The impacts on flood risk associated with the latest climate change allowances for peak rainfall levels are uncertain.

Suggested solution Ensure that detailed design is based on updated modelling that takes account of the latest EA climate change guidance for peak rainfall allowances.

3.2 Environmental Statement Chapter 14 Road Drainage and the Water Environment (Rev 1; dated 13/06/22)

14.8.4

Issue There is no reference to the need for structures within watercourses to also comply with the [Institute of Fisheries Management Fish pass manual](#).

Impact Structures within watercourses may not allow for fish passage in accordance with the necessary guidance.

Suggested solution Ensure that design principle LI17 in document 5.11

	Project Design Principles is amended to include compliance with the Institute of Fisheries Management fish pass manual when designating structures within watercourses.
14.8.4	<p>Issue We understood that the latest EA guidance in relation to the climate change peak rainfall allowances had not been used, although the latest values have been used in a sensitivity analysis within the Flood Risk Assessment (FRA).</p> <p>Impact The impacts on flood risk associated with the latest climate change allowances for peak rainfall levels are uncertain.</p> <p>Suggested solution Ensure that detailed design is based on updated modelling that takes account of the latest EA climate change guidance for peak rainfall allowances.</p>

3.4 Environmental Statement Appendix 14.1 WFD Compliance Assessment (Rev 1; dated 13/06/2022)

14.1.10.4	<p>Issue No specific mitigation is identified for the Greta from Sleightholme Beck to Ellder Beck (GB103025072140) or Greta from Gill Beck to River Tees (GB103025072130) water bodies which have been identified in the WFD assessment as being impacted by the scheme.</p> <p>Impact The proposed scheme may have a detrimental impact on WFD water bodies without specific mitigation.</p> <p>Suggested solution Ensure that specific mitigation proposals for the Greta from Sleightholme Beck to Ellder Beck (GB103025072140) and Greta from Gill Beck to River Tees (GB103025072130) water bodies are identified and agreed in accordance with EMP D-RDWE-08.</p>
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3.4 Environmental Statement Appendix 14.2 Flood Risk Assessment and Outline Drainage Strategy (Rev 1; dated 13/06/2022)

General	<p>Issue We have reviewed the baseline hydraulic models used to assess flood risk and inform the conclusions of the FRA for each of the schemes but we have not yet accepted them as fit for purpose so we cannot advise on the accuracy of the flood risk conclusions and any associated</p>
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	<p>mitigation proposals that are relevant to our remit.</p> <p>Impact The predicted impacts of the proposed development flood risk and suitability of any mitigation proposals (in so far as they relate to our remit) cannot be verified at this time.</p> <p>Suggested solution National Highways should provide a response to our reviews of their baseline hydraulic models and allow us to determine whether they are fit for purpose as soon as possible.</p>
14.2.2.74	<p>Issue It is stated “<i>baseline fluvial modelling undertaken for the scheme has highlighted an increased flood risk extent at Eamont Bridge for the 1 in 100-year fluvial event with a 94% climate change allowance and a slightly reduced extent associated with Dog Beck when compared to the Environment Agency Flood Map for Planning. This area is south of the proposed dual carriageway and does require further modelling or mitigation</i>”. However, it is not clear which area required further modelling / mitigation or what is proposed.</p> <p>Impact The risk of flooding and the need for any mitigation is not fully understood.</p> <p>Suggested solution Confirm what further modelling and / or mitigation is proposed for the M6 to Kemplay Bank scheme.</p>
14.2.2.81	<p>Issue A total of 43 properties also flooded in Eamont Bridge in 2009.</p> <p>Impact Lack of clarity in relation to flood history in vicinity of proposed development.</p> <p>Suggested solution Update evidence base to ensure historic flood risk is fully understood.</p>
14.2.5.77	<p>Issue Reference is made to 6.4.6 in relation to compensatory storage within Flood Zone 3b, but there is no section 6.4.6 within the FRA.</p> <p>Impact The suitability of the compensatory flood storage proposals in FZ3b for the Appleby to Brough scheme are unknown.</p> <p>Suggested solution Update the FRA to refer to the necessary details for the scheme for compensatory flood storage in Flood Zone 3b to allow it to be reviewed.</p>
Table 25	<p>Issue Table 25 gives the total volume of storage provided in each location.</p>

(Page A14.2-85 of 153)	<p>There is no information provided on how much storage is lost due to the scheme and the flood magnitude at which both the lost storage and the compensatory storage comes online.</p> <p>Impact The suitability of the compensatory flood storage proposals to mitigate the increased risk of flooding for the Appleby to Brough scheme are unknown.</p> <p>Suggested solution Provide additional information to confirm how much storage is lost due to the scheme and the flood magnitude at which both the lost storage and the compensatory storage comes online.</p>
14.2.5.132 and Plate 4	<p>Issue It is hard to see from the details provided (including those in the modelling report) how the compensatory storage areas work and how they are designed. Are they excavated into existing floodplain? How and at what return period / flow magnitude do they fill? How do they drain?</p> <p>Impact The suitability of the compensatory flood storage proposals to mitigate the increased risk of flooding for the Appleby to Brough scheme are unknown.</p> <p>Suggested solution Provide additional information to confirm how the scheme is designed, whether it is excavated into existing floodplain, how and at what return period / flow magnitude it fills and how it subsequently drains.</p>
Annex E: Hydraulic modelling reports – Appleby to Brough	<p>Issue In relation to the figures showing changes in flood depths because of the scheme, it is not always easy to interpret what is causing the changes in depth (changes in peak water level, changes in ground level, changes in flow, cut off flow routes) without also showing the depth grids that have been used to generate these. For example, it is surprising that that the new road embankments at Warcop Junction are not more pronounced within these maps and it is not clear why there are a broad section of increased flood depths passing through the embanked slip road at Warcop Junction (Figure 8-8).</p> <p>Impact The suitability of the compensatory flood storage proposals to mitigate the increased risk of flooding for the Appleby to Brough scheme are unknown.</p> <p>Suggested solution Provide additional information to address this issue.</p>
Annex E:	<p>Issue There is no schematic provided showing locations where before and</p>

<p>Hydraulic modelling reports – Appleby to Brough</p>	<p>after level and flow results have been extracted from the model (also confirming that, where applicable, combined 1D 2D flows have been extracted).</p> <p>Impact The suitability of the compensatory flood storage proposals to mitigate the increased risk of flooding for the Appleby to Brough scheme are unknown.</p> <p>Suggested solution Provide a schematic showing locations where before and after level and flow results have been extracted from the model and confirm that, where applicable, combined 1D 2D flows have been extracted.</p>
<p>Annex E: Hydraulic modelling reports – Appleby to Brough</p>	<p>Issue No detailed information is provided on the effects of the scheme on Low Gill Beck between the Lowgill Beck crossing and Warcop. Figure 8-13 in the modelling report shows increased water levels in a few places along this reach and the summary at the end of this section of the report highlights this and concludes that it is <i>“likely these increases are associated with areas of ground level change in the proposed scheme”</i>. For the most part this looks to be the case in Figure 8-13 in which case there needs to be an assessment of lost floodplain storage because of this and compensatory storage provided as required. The fact that the most downstream area of increased depth on Lowgill Beck shown in figure 8-13 appears to be downstream of any proposed earthworks suggests the possibility of increased pass on flows which needs to be investigated.</p> <p>Impact The suitability of the compensatory flood storage proposals to mitigate the increased risk of flooding for the Appleby to Brough scheme are unknown.</p> <p>Suggested solution Provide additional information to address this issue.</p>

3.4 Environmental Statement Appendix 14.4 Hydromorphology Assessment (Rev 1; dated 13/06/2022)

<p>Section 14.4.7</p>	<p>Issue Evidence indicates that the Tutta Beck and the Punder Gill have been modified in the past so using these channels as reference conditions to inform the design of a mitigation scheme may not be appropriate.</p> <p>Impact The proposed development may have detrimental impacts on the</p>
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	<p>water environment in the absence of a suitable mitigation scheme.</p> <p>Suggested solution To comply with D-RDWE-08, National Highways should take the opportunity to restore the watercourses to optimal natural conditions rather than copying existing channel dimensions and conditions. The design of the new channel must include an accessible, and active floodplain. Ground condition and local topography may mean that this needs to be a cut inset floodplain.</p>
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3.4 Environmental Statement Appendix 14.6 Hydrogeological Impact Assessment (Rev 1; dated 13/06/22)

14.6.3.101	<p>Issue It is incorrectly stated that where the existing A66 crosses it at Brougham Castle, the River Eamont flows in a westerly direction towards the River Eden.</p> <p>Impact Lack of clarity over the hydrology of the River Eamont could impact on the validity of the assessment of impacts on the aquatic environment.</p> <p>Suggested solution Update the assessment to confirm that the River Eamont flows easterly towards the River Eden from where the existing A66 crosses it.</p>
Section 14.6.8	<p>Issue In relation to the potential impacts to groundwater related features, much of the work in the HIA and other documents relies on the extent of the zones of influence, but the approach taken to estimate the zone of influence relies on an empirical equation and the inflow on a theoretical equation. The actual zone of influence may be more complex as confirmed in paragraph 14.6.8.5.</p> <p>Impact There is a risk that water features outside the zone of influence could be impacted, such as through loss of groundwater inflow.</p> <p>Suggested solution Identify alternative methods of assessing the zone of influence when considering what might be impacted by dewatering activities and do not just a focus on the estimated zones of influence through submissions to satisfy EMP requirement D-RDWE-09.</p>

5.1 Draft Development Consent Order (Rev 1, dated 13/06/22)

<p>Part 5 Miscellaneous and general: detailed design 54 (2)</p>	<p>Issue The draft DCO accompanying the application allows for the Secretary of State to approve a detailed design that departs from the approved design principles, works plans and engineering drawings subject to consultation with the relevant planning authority. No consultation with other relevant consultees (i.e. the Environment Agency) is required.</p> <p>Impact The significance of any environmental impacts of a detailed design that deviates from the approved DCO may be unknown.</p> <p>Suggested solution Further engagement between National Highways and us to identify alternative wording to address this concern.</p>
<p>Schedule 9 Protective Provisions Part 4 – Environment Agency</p>	<p>Issue The Draft DCO has not included protective provisions which are acceptable to the Environment Agency.</p> <p>Impact We are unable to agree to disapply Flood Risk Activity Permit (FRAP) requirements if we are not satisfied that the necessary protective provisions are secured through the DCO.</p> <p>Suggested solution Further engagement between National Highways and us is required to secure a suite of protective provisions that we would consider acceptable and allow us to disapply FRAPs.</p>

5.4 Consents and Agreements Position Statement (Rev 1; dated 13/06/2022)

<p>3.1.3</p>	<p>Issue Consent to erect structures in, over or under a main river will be subject to National Highways obtaining either a permit under the EPR or, if disapplication and suitable protective provisions are agreed, to consent under the protective provisions but this is not stated.</p> <p>Impact Lack of clarity.</p> <p>Suggested solution Amend the wording as follows:</p> <ul style="list-style-type: none"> • <i>Consent to erect structures in, over or under a main river (subject to National Highways obtaining either a permit under the EPR or, if disapplication and suitable protective provisions are agreed, to consent under the protective provisions)</i>
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5.7 Book of Reference (Rev 1; dated 13/06/2022)

<p>General</p>	<p>Issue The book of reference identifies the Environment Agency as having an interest in several pieces of land that National Highways intends to acquire to construct the proposed scheme.</p> <p>Impact The proposed development may have an impact on land we have an interest in.</p> <p>Suggested solution We will continue to review the Book of Reference and DCO documentation to determine how the proposal impact upon our interests and whether we need to provide further comments through the Written Representations stage. At this stage our Relevant Representation should be regarded as an objection to the acquisition of any land in which we have an interest by way of the DCO.</p>
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5.11 Project Design Principles (Rev 1; dated 13/06/2022)

<p>General</p>	<p>Issue The Project Design Principles document includes words or phrases which could be ambiguous in relation to the expected mitigation requirements, for example “<i>where appropriate</i>”, “<i>where reasonably practicable</i>” etc.</p> <p>Impact There is the potential for ambiguity in relation to securing mitigation measures that are necessary to protect the environment.</p> <p>Suggested solution Review the wording of the Project Design Principles document to avoid ambiguity and uncertainty in relation to identifying and securing mitigation measures necessary to protect the environment as part of the proposed development.</p>
<p>LI04</p>	<p>Issue The principle identifies the need to design new overbridges and structures to have regard to the need to conserve and maintain the integrity of riverbanks to prevent erosion, but it fails to identify that consideration will also need to be taken in relation to the risks to the structures themselves due to increased erosion over the lifetime of the development because of natural geomorphological process and climate change.</p>

	<p>Impact The impacts of climate change and natural geomorphological processes on erosion may not be considered.</p> <p>Suggested solution Update LI04 to make it clear the design of overbridges and structures must be designed to prevent erosion of riverbanks because of the development but also be able to adapt to the increased risks of riverbank erosion because of climate change and natural geomorphological processes.</p>
LI14	<p>Issue The principle states that “<i>where vegetated drainage features are to be provided adjacent to an existing watercourse, an appropriate margin is to be provided to allow for access and maintenance by riparian owners and land drainage authorities</i>” but it is unclear how an “appropriate margin” will be defined.</p> <p>Impact There is a risk that access to watercourses for maintenance and / or repair purposes will not be sufficient, leading to a potential increase in flood risk.</p> <p>Suggested solution Update LI14 to confirm that National Highways will work with relevant land drainage authorities (Environment Agency, Lead Local Flood Authorities, Local Authorities) to ensure that access to watercourses for maintenance and repair purposes, now and in the future, is agreed and will be retained in perpetuity unless otherwise agreed with the drainage authorities.</p>
LI14 LI15	<p>Issue Most species used in drainage features (or restorations of watercourses) are likely to spread downstream over time.</p> <p>Impact Potential risk of species that are not native to the water catchment spreading downstream to the detriment of downstream features and designations</p> <p>Suggested solution Update LI14 and LI15 to make it clear that for aquatic/emergent/marginal plants used to vegetate drainage features, only species native to that water catchment may be used.</p>
LI14 LI15 LI16	<p>Issue Biosecurity risks associated with sourcing aquatic plants are not referenced.</p> <p>Impact There is the potential for aquatic plants to be sourced from catchments with alien crayfish or crayfish plague if the plant nurseries</p>

	<p>use any natural river water.</p> <p>Suggested solution Update LI14, LI15 and LI16 to make it clear that for aquatic/ emergent/marginal plants used to vegetate drainage features, species will be obtained from sources that do not pose biosecurity risks to the catchment.</p>
LI16	<p>Issue The principle states that “<i>the size of an attenuation pond is governed by the catchment area draining into it. The design and form of new attenuation ponds must use the layout and form of their context (i.e. respond to local topography) to reduce use of materials and minimise visual impact where reasonably practicable (having regard to the functions of the pond), supported by strategic planting, drawn from an appropriate native species palette (local to the appropriate catchment where reasonably practicable)</i>”.</p> <p>It is true that plants may not always be available to source locally, but there is no reason why the “native species palette” cannot be local to the appropriate catchment.</p> <p>Impact There is the potential for the use of a native species palette that is not local to appropriate catchment, increasing the risk of species that are not native to the water catchment spreading downstream to the detriment of downstream features and designations.</p> <p>Suggested solution Update LI16 the principle as follows:</p> <p><i>The size of an attenuation pond is governed by the catchment area draining into it. The design and form of new attenuation ponds must use the layout and form of their context (i.e. respond to local topography) to reduce use of materials and minimise visual impact where reasonably practicable (having regard to the functions of the pond), supported by strategic planting, drawn from a native species palette (local to the appropriate catchment where reasonably practicable).</i></p>
LI16	<p>Issue The principle states that the size of an attenuation pond is governed by the catchment area draining into it, but this potentially misses an opportunity for betterment in catchments where providing a greater volume in attenuation ponds could provide additional flood protection downstream.</p> <p>Impact The wording limits opportunities for betterment which would</p>

	<p>provide environmental benefits downstream.</p> <p>Suggested solution Revise the wording of the principle as follows:</p> <p><i>The minimum size of an attenuation pond is governed by the catchment area draining into it.</i></p>
LI17	<p>Issue The principle states that “<i>where ponds are constructed near to existing watercourses, engineering structures must be avoided in proximity to such watercourses to reduce bank erosion</i>” but it is unclear what proximity means and what aspect of the design of the pond is actively reducing the bank erosion.</p> <p>Impact New attenuation ponds may detrimentally impact on existing watercourses by constructing them in inappropriate locations.</p> <p>Suggested solution Update LI17 to provide greater clarity and allow for consideration to be given to erosion from rivers encroaching onto drainage assets. Out of bank flows from watercourse or surface water flows have potential to damage and subsume ponds.</p>
LI17	<p>Issue The principle makes no reference to the need for structures within watercourses to also comply with the Institute of Fisheries Management Fish pass manual.</p> <p>Impact Structure within watercourses may not allow for fish passage in accordance with the necessary guidance.</p> <p>Suggested solution Revise the wording of the principle as follows:</p> <p><i>Structures within watercourses are to be designed in accordance with CD 529 (Design of outfall and culvert details), and CIRIA C786 and the Institute of Fisheries Management fish pass manual.</i></p>
LI19	<p>Issue The principle does not seek to specifically avoid the use of hard engineering and permanent (non-biodegradable) geotextiles.</p> <p>Impact Schemes for new/realigned/improved channels may include engineering options that would not improve the quality of the aquatic habitat and may not be acceptable to regulatory authorities.</p> <p>Suggested solution Reword the principle as follows:</p> <p><i>Any realigned watercourses must provide a 10m buffer strip on both</i></p>

	<p>sides of the new channel, where reasonably practicable, to allow for implementation of marginal and riparian habitat improvements. <i>Schemes should avoid the use of hard engineering and permanent (non-biodegradable) geotextiles. Where a 10m buffer strip on both sides of the watercourse cannot be provided, evidence will be submitted to the relevant drainage authority (Environment Agency, Lead Local Flood Authority and / or Local Authority) for approval to justify any reduction of buffer width.</i></p>
GB02	<p>Issue The principle encourages the extension of blue infrastructure, but it does not limit connection between catchments where there may be a biosecurity risk, i.e. improved connectivity/reduced proximity between headwaters of the Tees catchment with signal crayfish and the Eden catchment.</p> <p>Impact There could be risk that the extension of blue infrastructure may inadvertently lead to detrimental impacts where separate catchments pose a biosecurity risk.</p> <p>Suggested solution Reword the principle to specifically exclude opportunities for extension of blue infrastructure where this will pose a biosecurity risk:</p> <p><i>Where blue infrastructure is to be extended it should where reasonably practicable create resilient, connected wetland networks. Opportunities to extend blue infrastructure should be reviewed if there is evidence to demonstrate that it would cause harm to species or habitats in adjacent catchments.</i></p>
Table 3-4: Theme D Project-wide Design Principles	<p>Issue As a project-wide design principle, climate resilience focuses on planting and landscaping but there is no reference to ensuring the design takes account of the increased flood risk which will be exacerbated by more frequent and extreme events.</p> <p>Impact The project wide design principles do not account for all aspects of climate change relevant to the project.</p> <p>Suggested solution Ensure all relevant aspects of climate resilience are considered in the project wide design principles, particularly those related to flood risk.</p>
0102.05	<p>Issue The principle requires planting of appropriate native ecological</p>

	<p>planting at the attenuation pond.</p> <p>Impact Potential for species that are not native to the Eden catchment to detrimentally impact on the designated feature.</p> <p>Suggested solution Amend the principle as follows:</p> <p><i>...appropriate native ecological planting native to the Eden catchment at the attenuation pond.</i></p>
0102.06	<p>Issue The principle seeks to locate the proposed attenuation pond as close as reasonably practicable to the River Eamont.</p> <p>Impact Locating the pond too close to the river may have a detrimental impact on the geomorphology of the River Eamont, restrict access for maintenance and / or repair and have flood risk implications.</p> <p>Suggested solution Amend the principle as follows:</p> <p><i>...The pond is to be located away from existing parkland trees and close to as far away from the River Eamont as possible for as reasonably practicable having regard to the relevant environmental constraints.</i></p>
0405.04	<p>Issue In relation to the design of the Trout Beck crossing, the principle includes the provision that “<i>the span arrangements for the Trout Beck viaduct are to be designed such that the vertical clearance from the watercourse (in normal conditions) is a minimum of 2.5m</i>” but it is not clear as to whether the 2.5m vertical clearance is at least 600mm above the 1 in 100&94% CC allowance flood level nor is it clear what “normal” river conditions are.</p> <p>Impact The soffit of the bridge over Trout Beck may not be sufficiently above the climate change design flood level.</p> <p>Suggested solution Clarify these comments and how this relates to hydrological flood assessment. If the soffit level is already determined by other factors, confirm what the detailed hydraulic modelling will seek to define.</p>
0405.11	<p>Issue The principle relates to the provision of compensatory storage at the Trout Beck crossing but it is not clear why compensation needs to be located as close to the Trout Beck crossing as possible nor how this would reduce the footprint of the compensatory storage.</p>

	<p>Impact The location of the compensatory storage proposals may not be appropriate.</p> <p>Suggested solution Consider revising written detail to provide more clarity around the location and type of compensation to be provided. The compensatory requirements will be quantitatively defined and need to be hydraulically connected to the 1% AEP floodplain but not currently occupied by the 1% AEP flood plain (Flood Zone 3). The visual impact of a small amount of compensatory storage in greenfield future floodplain should be imperceptible and look natural once established.</p>
06.06	<p>Issue The principle relating to new watercourse crossings provided little commitment in relation to flood risk management, the provision of compensatory flood storage and access for maintenance and repair.</p> <p>Impact Design principles to secure appropriate flood risk management measures for this hydraulically problematic area are not included.</p> <p>Suggested solution Update 06.06 to provide more clarity in relation to the management of flood risk associated with the new watercourse crossings, specify that the provision of compensatory flood storage will be required where development results in a loss of floodplain capacity and confirm that access for maintenance and repair purposes will be retained.</p>