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Submitted via portal

APPLICATION BY NATIONAL HIGHWAYS FOR AN ORDER GRANTING DEVELOPMENT CONSENT FOR THE A12 CHELMSFORD TO A120 WIDENING

Please find below Deadline 7 comments from the Environment Agency in response to document **9.68 Technical Note on Proposals for Main River Crossings [REP6-095]**.

Section 2 Legislation and Policy Framework

2.3 National Networks National Policy Statement (NNNPS)

It is stated by the Applicant in section 2.3.5 that: “if the Secretary of State does decide to grant a DCO which includes culverts, it would not then be open to the Environment Agency, to refuse to grant the Environmental Permits on the basis that open span bridges should have been used instead of culverts.” The Applicant makes a similar statement in Section 4.5 of the Technical Note.

The Environment Agency has refused to give consent under s150 Planning Act 2008 for disapplication of the flood risk activity permitting regime under the Environmental Permitting (England and Wales) Regulations 2016 (EPR) which means that National Highways will need to separately obtain flood risk activity permits (FRAPs) for any part of the works proposed in the application for the DCO which require such a permit. The Environment Agency will consider the applications in the usual way on their merits at the time they are made.

In section 4.5 National Highways contends that the “Powergen” line of cases would preclude the Environment Agency refusing consent if the application for the DCO is granted. The Environment Agency disagrees with this submission. Its view is that the DCO regime and the flood risk activity permitting regime are different systems of

control and have an independent existence. 'Powergen' does not involve a situation where there is a quite separate statutory consent regime.

Neither the Examining Authority nor the Secretary of State for Transport as part of a consideration of the DCO application can make a definitive determination as to which legal submission is correct. In the event that National Highways applies to the Environment Agency for FRAPs and these are refused, the applicant has a right of appeal against the refusals which could be determined by an Inspector from the Planning Inspectorate (or the Secretary of State for the Environment if she chose to recover the appeal) and would be expected to pursue this before bringing any legal challenge based on the 'Powergen' principle. A refusal at the appeal stage could then be legally challenged and the Court would make a decision on the issue.

Paragraph 5 of Part 1 of Schedule 25 of the Environmental Permitting (England and Wales) Regulations 2016 states that the Environment Agency must exercise its relevant functions, in this case flood risk activity permitting, for the purpose of achieving the following objectives:

- (a) Managing flood risk
- (b) Managing impacts on land drainage
- (c) Environmental protection.

Furthermore, when determining the permit application, the Environment Agency has a duty to secure compliance with the Water Framework Directive. The Environment Agency must not issue a permit for any activity that may cause a deterioration of the status of a water body or will jeopardise the attainment of good status unless the defence under Regulation 19 of the Water Environment (Water Framework Directive) Regulations 2017 (transposed from Article 4.7 of the Water Framework Directive) applies.

When making an application for culverting applicants must assess the impact of proposed culverts on water bodies and the objectives in the relevant River Basin Management Plan. If culverting results in deterioration of the WFD water body status or prevents it from meeting 'good' status, the applicant will have to demonstrate the development meets the requirements of Regulation 19.

Further detail regarding our concerns in respect of the effect of the proposals on the objectives of the Water Framework Directive is provided below.

2.4 Water Environment (Water Framework Directive) (England and Wales) Regulations 2017

All development has impacts but the Environment Agency has serious concerns about the proposals to culvert Main Rivers. We believe this design choice will cause significant unnecessary harm to the water environment with a very real risk of contributing to or causing waterbody deterioration or the ultimate inability to achieve good potential or status on these waterbodies.

In our experience, most highways bodies choose to build clear span bridges over Main Rivers and even many smaller ordinary watercourses as the environmental

benefits over culverts are very clear. Given that there would appear to be space for alternatives which would avoid the significant damage to the river corridors we are not clear why the Applicant has chosen to propose such a damaging approach. We do not concur with the results of the WFD assessment which we believe undervalues the significant damage and risk of deterioration to the waterbodies.

The new and widened watercourse crossings which are proposed to be culverted will have significant impacts on the sections of rivers that they cross. Damage to rivers often creates cumulative effects elsewhere and a significant impact in one section cannot be undone or fully mitigated for by enhancing an alternative section. The mitigation hierarchy dictates that all damage to the environment should be avoided in the first instance where possible. Any new road crossings will have some adverse impacts, but culverting destroys whole reaches of natural river habitat, severs connectivity with the terrestrial riparian zone on either side of the river and damages the integrity of the ecosystem. Whilst we support the proposals for mitigation which will deliver a slight improvement on the enhanced lengths over the existing condition, they will unfortunately in no way undo or be adequate compensation for the unnecessary and very significant damage that will be permanently done by the proposals to culvert.

These proposals appear to have made no attempt to avoid unnecessary damage and are not in accordance with the Anglian River Basin Management Plan (RBMP) (December 2022). The introduction to the Plan states in section 3:

“The aim of the river basin management plans is to enhance nature and the natural water assets that are the foundation of everybody’s wealth, health and wellbeing, and the things that people value including culture and wildlife. Rivers... and the essential services they provide, are worth billions of pounds to the economy. All parts of society benefit from clean and plentiful water.

The plans describe the framework used to protect and improve the quality of waters in each river basin district... the plans consider climate change to be a critical challenge that requires urgent action and investment in order to limit future deterioration in the quality of the water environment.”

The Environment Agency oversees and surveys rivers and watercourses to aim to deliver the RBMP with partners. Public bodies and industry are expected to work together to achieve results including to:

- *Work with natural processes – where possible choose nature-based solutions to protect and improve natural water assets and deliver multiple benefits.*
- *Build catchments resilient to warmer water temperatures – choose measures that help natural assets cope with or recover from shock.*
- *Promote restoration and recovery of freshwater habitats and species*

We consider the Applicant’s approach to be contrary to the above. The proposed crossings do not appear to have been designed to limit the initial impact on the environment. The approach instead appears to have been to try to carry out some degree of mitigation after the main design stage. Whilst it is not our role to design such projects, we were asked in early pre application discussions with the Applicant

what we would accept and were quite clear. The culverting proposals do not represent the appropriate RBMP approach and will destroy all natural habitat on these sections of river creating biodiversity blackspots and restrictive areas of damaged habitat where biodiversity and the health of the water environment will be put under extra pressure and stress during a time of climate change and biodiversity emergency.

Planning to build damaging structures that destroy lengths of river when there are clear river basin management plans dictating the opposite is an approach at odds with the RBMP, the National Policy Statement for National Networks (NNNPS), the draft NNNPS and the National Planning Policy Framework (NPPF). The SoS has a statutory duty to have regard to the RBMPs when deciding the DCO application.

Impacts of the culverts

Building new culverts and extending older ones using a similar design will exacerbate the damage of the original poorly designed crossings and put extra pressure on the river waterbodies.

Clear span bridges align with the RBMP approach as they are built around the river. They do not cause the significant integral damage to the river or the natural corridor it is reliant on. Spanning over rivers is a method of working with natural systems and protecting the natural water resource whilst delivering development.

Essex rivers are already showing strains from hotter drier summers which are a feature of climate change, with reduced flows and lower dissolved oxygen levels. We believe that there is an urgent need for collaboration to deliver positive works that enhance river quality and avoid negative impacts.

The RBMP states the following:

“Public bodies should ensure the environmental objectives of the plans are reflected in their processes and plans.

The plans will...help reverse the significant decline in water dependent biodiversity by restoring and reconnecting essential habitats.

The RBMP will assist to deliver the Government’s 25-year environmental plan including: Thriving plants and wildlife – achieve a growing network of land water and sea that is richer in plants and wildlife.

The current culverts installed as part of the previous development of the A12 damaged the rivers they crossed, and the Environment Agency would expect to see an applicant seeking to improve and looking to remove at least some of these poorly designed damaging and constraining structures.

We know of numerous otters killed at the existing A12 crossings from our work with the Cardiff University Otter Project. We are aware that where otters are killed avoiding barriers like culverts, there are usually other species such as water vole and eel that also find it difficult to pass through especially in periods of higher river flows.

Whilst culverts may be passable to some species or individuals in some conditions, their continued use does not enhance nature or help to build a resilient water environment.

Damage to habitats is sometimes difficult to assess and the cause of deterioration over time can by its nature be multifaceted and influenced by a number of different stress factors. Sometimes stresses on a system combine and affect population crashes in natural ecosystems years after the trigger cause. Declines in viable wildlife populations can be masked even when surveyed and difficult to assess. Now that the climate emergency and biodiversity crisis are scientifically proven and accepted the existing very worrying declines of species and conditions of habitats need positive action and embracing via a completely proactive approach.

Our rivers have declined due to many reasons. Some are well known - the impact of river encroachment by development and poor engineering design for example. There are lots of actions which we expect applicants to do in mitigation for proposed works but before all that we expect the basic damage limitation and avoidance of harm to the environment. In this case the proposals to lengthen old culverts and build new ones is a damaging approach that will cause more severance of habitats in river systems which are already under stress by virtue of being in the driest area of the country and are now becoming exposed to the most extreme summer temperatures in the UK.

The proposed enhanced lengths do not deliver the radical mitigation needed to offset the culverts which we consider to be a significant harm to the river environment.

Natural river is proposed to be lost here without proper justification and this river habitat is not being replaced. We believe that the lengths of enhancement proposed could be adequate for mitigating for the effects caused by the shade of a clear span bridge but not for the total loss of natural river corridor as proposed through culverting.

The proposed culverts are likely to cause effects on deterioration contributing to biological elements including macrophytes, invertebrates, fish and water quality as well as harming the river continuity, floodplain connectivity, and adding to stresses which will act in combination with other factors over time. These issues are dismissed in the Applicant's WFD assessment [APP-159] as not causing deterioration at a waterbody scale. However, the effects will most likely be cumulative and there are likely to be continuing multiplier stress effects on the water environment.

Already many East Anglian rivers are suffering fish kills due to heat, low flows, low dissolved oxygen levels and algal blooms in summer. Confining rivers to long dark concrete culverts is going to create damaged sections that are less resilient and will undoubtedly lead to erosion of river habitat and water quality through lack of light and aquatic life. Water quality and oxygen levels will be reduced and contribute to exacerbating problems downstream. The culverts could therefore potentially cause or contribute to waterbody failure in other parts of the catchment through failure of fish and eel passage or cumulative impacts of low flows, warmer water temperatures and low dissolved oxygen.

Brown trout are a key indicator for fish in the water environment and are already suffering badly due to heat stress. They need healthy headwaters to migrate to and breed in. Equally eels are reliant on a healthy fluvial river system for their growth and internationally numbers appear to be collapsing. The Blackwater catchment (which the Ter, Brain, Domsey Brook and Rivenhall Brook are all part of) is a vital national resource with the constituent waterbodies currently supporting large numbers of female European eel. In East Anglia some of our environmentally compromised rivers have lost their eels through mass die off. There is a need to build resilient and more complete, healthier ecosystems for key endangered and protected species like eel to survive in healthy numbers. A revision of these culverts and replacement with options which do not affect the banks or riparian zone is needed here for us to agree with the assessment that effects are likely to be benign.

The failure to achieve a positive result from the Water Environment (Water Framework Directive) England and Wales 2017 regulations assessment can potentially be overridden by Regulation 19 (Article 4.7) derogations where the 4 tests can be met, although this is clearly to be treated as a last resort. This is a matter for the Secretary of State for Transport who is the decision maker on the DCO application.

We do not believe that the Article 4.7 tests can be met in this instance as the road scheme can be built without causing the culverting damage and clear alternatives exist that could deliver the scheme without significant harm. Costs for alternatives such as clear span bridges may be higher but the difference in environmental impact will be considerable and will not leave a legacy of damage to the water environment which would be more costly to resolve in the longer term. The extra funding for bridges spanning and set well back from the banks of the rivers would be an investment for the long term capable of delivering multiple benefits locally and across the whole catchment. This is a multi-million pound project and the extra cost of clear span bridges is unlikely to be a significant amount in the context of the overall cost of the scheme which makes it very disappointing that National Highways has remained intransigent on this issue.

Looking more widely, if similarly designed road-schemes were to be rolled out across the country without due regard to RBMPs it is our opinion that there will be significant damaging effects and that public and private money invested in restoring rivers will sadly be wasted. The proposals go against our consultation advice and the RBMP requirements to “*embrace nature-based solutions*” and “*help reverse the significant decline in water dependent biodiversity by restoring and reconnecting essential habitats*”. This is not an adequate and acceptable set of proposals as it stands.

We would also highlight that Natural England have confirmed to us that they have not provided any site-specific advice on this scheme for water vole and otter but directed the Applicant to the Protected Species Standing Advice for those species. The Applicant has discussed bat and badger licences with them for specific works. It is the applicant's responsibility as normal to act responsibly with regard to protected species including otter and water vole.

2.5 Environment Agency's Policy on Culverts

Culverting involves firstly the destruction of the natural river corridor and replacement with a dark concrete tunnel with little scope to support river life or promote good water quality. The Environment Agency and predecessor organisations (such as the National Rivers Authority) have long recognised that open natural rivers function best without too much unnecessary human interference. Engineering and building encroachment on river corridors usually has adverse long-term consequences. The long-established watercourse consenting system (now Flood Risk Activity Permitting, falling under the EPR) and indeed national planning policy recognises that natural ecosystem services are provided by our watercourses and environmental harm has serious long-term consequences. The damage caused to rivers by culverting has been the reason for a longstanding anti-culverting policy which predates the establishment of the Environment Agency in 1996.

National Highways has argued that no weight should be placed on the Environment Agency's culverting policy. We disagree. The policy is a material consideration as policy produced by a statutory body giving expert advice on these issues and it is a matter for the Secretary of State as decision maker to decide what weight to place on it.

To deliver widespread improvements to river systems historic culvert removal will be a necessary yet expensive task. The Environment Agency's view is that we should avoid making historic mistakes of the past by new culverting which will cause a legacy of further unnecessary environmental harm.

The Environment Agency was set up with and retains a duty under Section 6 of the Environment Act 1995, to such extent as it considers desirable, generally to promote:

- (a) the conservation and enhancement of the natural beauty and amenity of inland and coastal waters and of land associated with such waters;
- (b) the conservation of flora and fauna which are dependent on an aquatic environment

Under EPR our approach is to permit culverting only where there is no viable physical alternative and only for the shortest lengths where the watercourse environment will not be adversely impacted. Culverts are not normally permitted on Main Rivers as these are recognised as our vital wildlife corridors and important natural resources. Culverts cause serious damage to rivers which can rarely be undone. We consider that allowing the installation of box culverts has the potential to create a worrying precedent for further damage. On linear habitats such as river systems the damaged weakest point lowers the potential of the whole ecosystem. Such damage is serious and unfortunately cumulative on the system.

Culverts are usually proposed as an economic solution, that is they are the cheapest option. This approach fails to take account of the resulting serious long-term consequences for the catchment. The Environment Agency and partners seek to undo historic damage to rivers, but this is rarely possible for structures previously installed as part of major engineering schemes due to the excessive costs involved.

National Highways has, as a public body, a duty to consider biodiversity under the Natural Environment and Rural Communities Act (2006) and an additional stronger new duty under the Environment Act (2021) to conserve and enhance biodiversity. The Applicant also has a clear duty through the planning process to follow the mitigation hierarchy to aim primarily to avoid negative impact. Culverts cause significant negative effects on the river environment. The mitigation hierarchy is a feature of National Highways own guidance in the Design Manual for Roads and Bridges (DMRB) LD118 Biodiversity (March 2020). In proposing culverts, the applicant has failed to follow its own guidance and national planning policy from the start of this project, by not avoiding significant environmental harm in the first instance.

The DMRB states that structures will have an expected lifespan of 120 years or more. The imposition of the long dark culverts as proposed would have a lasting legacy on these river catchments.

We believe the use of culverts over Main Rivers here will cause significant environmental harm and does not constitute sustainable development.

The Applicant's mitigation proposed on some damaged sections of the rivers is welcome as it undoes some of the old damage done to the river system by the poor designs of the original historic A12 construction. It does not go far enough to mitigate for having new road crossings which culvert the river causing additional significant harm. It is therefore not acceptable as mitigation for such potentially damaging culverting proposals.

Section 3 Literature Review

The Environment Agency, and partners including Essex Wildlife Trust, collect data on otter death blackspots and carcasses of dead otters for Cardiff University's long running research project. Roadkill numbers on busy dual carriageways are under-recorded due to safety considerations, but despite this the particular problem of narrow culverts on historic trunk roads such as this has long been recognised. A significant number of otter deaths have been recorded in the vicinity of this section of the A12.

Over many years we have seen that bridges with abutments set well back from the riverbank are much less likely to have problems with mammal deaths and these areas often support good viable populations of both otter and water vole. Where the river is narrowly constrained by less sustainable designs of bridge or culvert more problems arise with animals becoming road traffic casualties.

Road deaths or predation due to habitat damage and fragmentation is not recorded for smaller mammals such as water vole. Water vole are prey for many predators and scavengers and being much smaller animals would disappear very quickly without trace. There is no evidence that water voles will use long culverts and they require natural soft banks for year-round survival. Severance of water vole populations has become a significant problem along rivers in East Anglia.

The Applicant refers in this section to the CIRIA Culvert Screens and Outfall Manual (CSOM) (CIRIA C786). This was written to combine previous guidance on screens and culverts from different sources including the Environment Agency. It was aimed primarily at drains and small outfalls rather than Main Rivers for which there has been an assumption against the granting of permits for culverts more than 20 years.

In introducing the Guide, the [GOV.UK webpage](https://www.gov.uk) states:

They (culverts) have the potential to completely restrict flow. They are often costly to maintain and being intrinsically linked to other infrastructure or urban environments, can adversely affect sensitive aquatic environments, and create severe health and safety hazards.

The CSOM seeks to avoid the use of culverts and screens altogether. Where there are demonstrably no alternatives to culverting, the design principles in the CSOM helps designers to remove the need for screens, as well as reducing whole life costs to little more than routine inspection and maintenance.

In conclusion it adds:

The CSOM adopts an ‘evidence-based’, ‘whole life’ and ‘full system’ approach to the design and management of culverts, screens, and outfalls, with strong presumptions for restoring systems to a more natural state through ‘daylighting’ and against building screens or culverts – unless there are demonstrably no alternatives.

The suggestion that creating more culverts will be an improvement on baseline conditions is somewhat surprising. There are very clear alternatives to culverts over these Main Rivers in this widening scheme which will be demonstrably better and deliver multiple benefits for the water environment.

Section 4 Review of the proposed crossings

4.2 Watercourse crossings on the on-line section

The Applicant has made numerous references within this section to the Environment Agency’s fish and eel migration barriers database and stated that the absence of inclusion within that dataset suggests that structures (i.e., the existing crossings) do not pose a significant barrier to fish passage. The dataset is limited and focusses primarily on in-channel obstructions such as weirs. The absence of the existing crossings from this list should not be taken to suggest that these structures present no barriers to movement.

There are four watercourse crossings referred to within this section for which no changes to the existing structures are proposed as part of these works. These are:

Boreham Brook culvert (road widening here but no change to structure)

River Ter Bridge (road widening here but no change to structure)

Rivenhall Bridge (remains on de-trunked section)

Domsey Brook (east crossing) existing structure (remains on de-trunked section)

Consequently, when commenting on the DCO application we have not requested that these structures be amended. However, we would be supportive were the Applicant to consider options for improving those structures as part of this scheme. An infrastructure project of this scale presents a significant opportunity to rectify past engineering choices which are now known to be having a damaging effect on the river corridors.

The Cardiff University Otter Project has recorded a significant number of otter deaths in the vicinity of this section of the A12. The Domsey Brook crossing had no evidence of otters using it at the time of the Applicant's survey, but we know of at least one otter death on the A12 at that location. As a minimum the Applicant should be looking to retrofit all existing culverts with appropriate ledges to provide an opportunity to reduce any further otter deaths.

River Brain Bridge

We agree that the widening of this structure will not reduce its permeability to riparian mammals, and we have not requested that it be replaced with a larger structure. We have raised concerns, including in our Written Representation [REP2-054], that the existing concrete invert slab causes particular problems for fish in summer and for migrating young eels and elvers. We would not wish to see an extension of this structure that could exacerbate an existing known problem, and we have highlighted that the scheme presents an opportunity to improve flows at this location during drier months. As such we welcome the commitment by the Applicant to look at options to increase the depth of the main channel. Agreement on a suitable design will be required prior to the granting of a Flood Risk Activity Permit.

River Blackwater (Ashman's Bridge)

We've agreed that the widening of this structure would not reduce its permeability to riparian mammals, and we have not requested that it be replaced with a larger structure. We have highlighted the potential harm caused by the loss of natural bank as a result of the extension and use of concrete revetment [REP2-054]. We welcome the commitment from the Applicant [REP5-003] to look at how natural banks can be retained at the detailed design stage, and other design measures to maximise delivery for biodiversity.

Roman River

The existing structure is of poor design and significant morphological damage has been done to the naturalness of the Roman River at this location. Large scale infrastructure schemes such as this represent an opportunity to upgrade crossings with structures that are better designed to maintain ecological networks. We acknowledge the costs in doing so as outlined in the Technical Note.

An extension to the existing culvert is proposed which mirrors the current design. We note that alternatives to a box culvert are stated as being feasible, although no further information is provided as to what those alternatives might be. The first preference for the design of the extension to the crossing is one which avoids harm.

We would welcome a further assessment of design options which retain a more open and natural river channel. We do not believe that the Applicant has demonstrated

that an extended box culvert will not make fish (including protected species European eels and brown trout) and mammal passage more difficult.

4.3 Watercourse crossings on the off-line section

Rivenhall Brook

The Technical Note states that an alternative 10m precast portal bridge structure was reviewed and found to be feasible to construct but would result in a slight reduction in headroom. There is no information on whether the feasibility of a clear span bridge was assessed. While a clear span bridge would offer a preferable continuation of the river corridor, a portal bridge structure, depending on design, would appear to offer potential benefits over the proposed box culvert. Designs would be required to prevent fragmentation of the river habitat, retain natural banks and a natural channel and permit macrophytes to grow in much of the crossing. Further detail would be required were this option to be progressed.

We note the comment regarding the loss of height and light ingress, but we are not clear if a full comparison between the effects of a box or portal culvert on the ecology of the river corridor has been carried out.

The proximity to the existing culvert structure (Rivenhall Bridge) is cited as a reason for not providing a more open structure at this location. We would suggest that the retention of historical structures elsewhere within the river corridor does not justify a crossing design which will further restrict species movement and cause additional habitat fragmentation.

Domsey Brook (west)

We note that no alternative to the existing design was considered feasible for the extension to the crossing and replacing the existing structure has been discounted due to costs. It is not clear how options for widening the opening and including natural banks within the extension have been considered. Our view remains that it has not been demonstrated that the proposed extension will not introduce a further barrier to species movement.

Domsey Brook (east)

The Technical Note states that an alternative 12m precast portal bridge structure was reviewed and found to be feasible to construct. There is no information on whether the feasibility of a clear span bridge was assessed. While a clear span bridge would offer a preferable continuation of the river corridor, a portal bridge structure, depending on design, would appear to offer potential benefits over the proposed box culvert. Designs would be required to prevent fragmentation of the river habitat, retain natural banks and a natural channel and permit macrophytes to grow in much of the crossing. Further detail would be required were this option to be progressed.

As with the new Rivenhall Brook box culvert, the proximity to an existing culvert structure is cited as a reason for not providing a more open structure at this location. As stated above, we do not agree that the retention of historical structures elsewhere within the river corridor justifies a crossing design which will further restrict species movement and cause additional habitat fragmentation.

4.5 Consideration of Alternatives

The case law quoted (R. v Warwickshire CC Ex p. Powergen Plc (1998) 75 P. & C.R. 89) ("Powergen") relates to alternatives in relation to EIA which is not the issue here. The principles regarding alternatives are different in relation to WFD issues so the arguments set out in Section 4.5 are flawed. One of the tests for satisfying Regulation 19 (Article 4.7) is that the benefits of the project cannot be achieved by a significantly better environmental option. The Environment Agency has explained why it considers clear span bridges are a less environmentally damaging option.

It is for the applicant to demonstrate that the alterations to the water bodies made by the proposed development cannot be achieved by other means which are a significantly better environmental option, are technically feasible, and do not lead to disproportionate cost. The Applicant has not stated that clear span bridges for the new crossings are not technically feasible nor explained why they would be disproportionately expensive given this is a multi-million pound project.

We cannot agree that the Applicant has conclusively demonstrated that the highlighted Main River crossings will not cause unnecessary and avoidable environmental damage. It is not the role of the Environment Agency to undertake such an assessment.

Clear span bridges allow for the retention of a natural river channel and corridor, and limit the loss of light and bankside vegetation. The choice of a more open structure for the crossing of a Main River can avoid adverse ecological impacts such as habitat loss and fragmentation and prevent the introduction of barriers to species movement. The approach to first seek to avoid the adverse impacts of development is the basis of the mitigation hierarchy prescribed in the draft National Policy Statement for National Networks (NNNPS) (March 2023) and the National Planning Policy Framework (July 2021).

It is also the basis of the Environment Agency's culverting policy. This policy recognises the adverse ecological impacts of culverting and seeks to avoid those impacts by requiring applications for Flood Risk Activity Permits to demonstrate why potentially less damaging alternatives cannot be used. Each Main River crossing proposed as part of this DCO application will require a Flood Risk Activity Permit from the Environment Agency. In this case the Applicant does not appear to have taken an approach in line with the mitigation hierarchy or our culverting policy. Mitigation measures which we deem to be inadequate have been proposed to justify the use of culverts, with very little justification as to why alternative, less damaging design options have not been progressed.