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**Our ref:** NA/2020/115170/02-L01  
**Your ref:** TR010059  
**Date:** 12 March 2021

Dear Sir/Madam

**A1 IN NORTHUMBERLAND: MORPETH TO ELLINGHAM WRITTEN REPRESENTATIONS FOR DEADLINE 2 AND 3**

Please find enclosed our written representations for this Development Consent Order (DCO) on behalf of the Environment Agency. If you have any questions or require any clarification on the points below, please do not hesitate to contact me.

Yours sincerely

██████████  
**Planning Technical Specialist - Sustainable Places**

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**A1 IN Northumberland: Morpeth to Ellingham DCO Application Planning  
Inspectorate Reference: TR010059**

**Summary of Written Representations  
On behalf of the Environment Agency (EA)**

Our response is based upon the DCO information originally submitted and accepted by the Inspector.

**6.29 Annex A - Approach to the Assessment of Losses and Gains of  
Watercourses [REP2-010]**

We would welcome clarity regarding the definition of 'watercourse' that has been used for this assessment. Section 1.1.1 of this assessment refers to a watercourse as running water. 7.9.1 Appendix A Response to RR-04 Environment Agency - Rev 0 [REP1-065], section A.75 states all watercourses within the DCO order limits have been identified as Habitats of Principal Importance. However, page 7 of 3.1 Draft Development Consent Order - Rev 3a [REP3-005], states that a watercourse includes 'all rivers, streams, ditches, drains, canals, cuts, culverts, dykes, sluices, sewers and passages through which water flows except a public sewer or drain'. The Water Framework Directive (WFD) seeks to manage, protect and improve the water environment and applies to all rivers (including drains and ditches), lakes, estuaries, coastal waters and groundwater. With this in mind, we would welcome clarity regarding why and how have the Cotting Burn, tributary of the Earsdon Burn, unnamed ditch (north of Longdike Burn) and tributary of Thirsdon Burn have been reassigned as dry ditches within this assessment.

There appears to be a heavy reliance on the planting of woodland as mitigation or compensation for the loss of watercourse. Tree planting is not like for like compensation. This tree planting is often described as 'wet woodland' creation, which we believe is an incorrect definition of the habitat created and should be reclassified as riparian woodland unless it can be clearly demonstrated that wet woodland is being created. We would welcome a package of works that would prove meaningful compensation for the loss of watercourse. We note an updated net loss of 11.69% of watercourse and a gain of 7.21% of area based units and as such, we would encourage opportunities to compensate for this loss with equivalent river based units. Where river units or length are lost, common compensation measures that we encourage often include the re-naturalising and re-meandering of heavily modified and straightened watercourses.

We disagree with the statement 'otters are assessed as likely absent from the order limits of Part B'. The applicant has not taken into account historical records and as such has not taken a precautionary or full informed approach to their assessment, despite an acknowledgement that 'the desk study recorded 13



records of otter within the 2km search area'. We expect the assessment to be revised to acknowledge the likelihood of otters within Part B and the increased risk the widened road and longer culverts are likely to pose on commuting otters. We also encourage as part of the assessment, that a form of connectivity assessment is undertaken to inform the mitigation required.

#### **7.9.1.1 Annex A - Culvert Mitigation Strategy - Rev 0 [REP1-066]**

The applicant needs to provide compensation for the loss of watercourses and habitats, which is not evident in the culvert mitigation strategy or the Outline Construction Environmental Management Plan (CEMP) - Rev 2 [REP3-013]. The mitigation strategy states large areas of wet woodland will be created which we believe is an incorrect definition of the habitat created and should be reclassified as riparian woodland, unless it can be clearly demonstrated that wet woodland is being created. We are unable to see the evidence of this and would recommend that these proposals are included in the Landscape Mitigation Masterplan or similar plan.

We welcome the intention to improve 850m of Longdyke Burn as a result of the 79.2m increased culverting of this watercourse. We request that further details and clarity are provided on this proposal.

#### **7.3 Outline Construction Environmental Management Plan (CEMP) - Rev 2 [REP3-013]**

We request that a number of the actions set out in the outline CEMP are updated to reflect best practice and that further information is provided. In particular, we welcome further information regarding the provision of 38ha of 'wet woodland' and 12ha of 'marginal planting'.

The culvert mitigation strategy indicates a loss of 543.3m of riparian and river habitat whereas Annex A – Approach to the Assessment of Losses and Gains of Watercourses [REP2-010] suggests the total length to be 427m. This is a discrepancy of 116.3m. We would welcome clarification on the total length of riparian and river habitat that will be lost due to the culverting of watercourses.

The Environment Agency must be consulted on the detailed CEMP. We request the inclusion of a requirement stating that the detailed CEMP will be approved by the Secretary of State following consultation with Northumberland County Council and the Environment Agency.

#### **6.32 Environmental Impact Assessment - River Coquet Geomorphology Modelling Assessment [REP3-009]**

The revised Geomorphology assessment has acknowledged our concerns and demonstrates that the proposals will not lead to any deterioration in the River Coquet.

**7.9.1.3 Annex C - Figure 11.7 Potential Contamination Sources - Rev 0  
[REP1-068]**

Developments on or adjacent to Foot and Mouth burial or disinfectant sites require authorisation/permission from the Animal Health Protection Agency (APHA).

**6.5 Environmental Statement - Figure 11.2 Superficial Geology Part [A APP-114]**

The superficial map provided still identifies peat in two of the most southerly borrow pits whilst the borehole logs do not corroborate this. There is no assessment/discussion as to the presence or not of peat, and what its relevance is in terms of impacts from dewatering. Dewatering these could impact the deposits on the east side of the carriageways (excluded from the scheme). The sand and gravel deposits and limestone formations potentially link scheme to licenced abstraction and private water supplies. Dewatering activities should assess risk to these

**Flood Risk**

We have no flood risk concerns.



**A1 IN Northumberland: Morpeth to Ellingham DCO Application Planning  
Inspectorate Reference:**

**Written Representations  
On behalf of the Environment Agency (EA)**

Our response is based upon the DCO information originally submitted and accepted by the Inspector.

**6.29 Annex A - Approach to the Assessment of Losses and Gains of Watercourses  
[REP2-010]**

With respect to section 2.1, we are concerned that the dry channels/ditches identified in Part A have been removed from the phase 1 habitat plans as running water, and hence from the habitat loss and gain calculations for watercourses. We would therefore welcome clarity regarding the definition of 'watercourse' that has been used for this assessment.

It is noted that section 1.1.1 of this assessment refers to a watercourse as running water. 7.9.1 Appendix A Response to RR-04 Environment Agency - Rev 0 [REP1-065] and section A.75 states all watercourses within the DCO order limits have been identified as Habitats of Principal Importance. However, page 7 of 3.1 Draft Development Consent Order - Rev 3a [REP3-005] states that a watercourse includes 'all rivers, streams, ditches, drains, canals, cuts, culverts, dykes, sluices, sewers and passages through which water flows except a public sewer or drain'. The Water Framework Directive (WFD) aims to manage, protect and improve the water environment, and applies to all rivers (including drains and ditches), lakes, estuaries, coastal waters and groundwater. With this in mind, we would welcome clarity regarding why and how have the Cotting Burn, tributary of the Earsdon Burn, unnamed ditch (north of Longdike Burn) and tributary of Thirsdon Burn have been reassigned as dry ditches within this assessment.

We understand that a number of these watercourses may be degraded, and of reduced ecological value. However they still play a role, both in terms of habitat and connectivity. Placing these waterbodies in a culvert prevents any future opportunities for improvements, and it may break the corridor these watercourses provide. It also needs to be recognised that the status of these "dry channels" has been determined following a short field survey window that may, or may not be representative of average conditions. For example, 6.7 Environmental Statement - Appendix 10.2 Water Framework Directive Assessment Part A [APP-255] for the unnamed tributary of the Thirston Burn appears to show a flow through the culvert (figure 11-1). Redefining these features as channels rather than watercourses is a reasonable alternative approach. However, it must acknowledge that they have value, though not to the same degree as the permanent waterbodies, and that their loss will result in a reduction in biodiversity.



With respect to table 3-1, treating newly re-aligned watercourses as a net gain, against the lengths of watercourses lost to culverting is not an appropriate means of assessing net gain and loss. It fails to acknowledge that in re-aligning a watercourse, the original channel is lost. Any net gain would come from the newly aligned channel being longer than the original. This needs to be addressed as it provides a false impression on the overall impact of the scheme on the watercourses within the development corridor.

### **Biodiversity No Net Loss**

We are pleased to see a re-evaluation and drastic reduction in the reported loss of watercourses associated with Parts A and B of the scheme. We also recognise that Biodiversity Net Gain (BNG) is not in current planning law and is not applicable to Nationally Significant Infrastructure Projects. However, we believe that it should be used as a guide to provide the best possible outcomes, direct the mitigation and compensation designs, and achieve biodiversity betterment where feasible. This is reflected in the Government's 25 Year Environment Plan, which advocates an 'environmental net gain' principle for development, including housing and infrastructure. Furthermore, the applicant's 'Our plan to protect and increase biodiversity Strategy, 2015' (We acknowledge that this runs from 2015-2020. However, work on the DCO submission documents took place during the lifetime of this strategy) states that 'network improvement projects will mitigate and compensate their biodiversity impacts in order achieve no net loss of biodiversity, as far as the projects are reasonably able'. In addition, 'projects will identify biodiversity opportunities and deliver actions that will achieve biodiversity betterment wherever possible'. The following outcomes from this strategy are relevant to this scheme.

- Outcome 3. We have delivered biodiversity enhancements whilst implementing a capital programme of network improvement.
- Outcome 4. We have addressed the legacy of biodiversity problems on our network via a targeted programme of investment.

There appears to be a heavy reliance on the planting of woodland as mitigation or compensation for the loss of watercourse. Tree planting is not like for like compensation This is often described as 'wet woodland' creation, which we believe is an incorrect definition of the habitat created and should be reclassified as riparian woodland, unless it can be clearly demonstrated that wet woodland is being created.

We would welcome a package of works that would provide meaningful compensation for the loss of watercourses. We note an updated net loss of 11.69% of watercourse and a gain of 7.21% of area based units. Therefore, we would encourage opportunities to compensate for this loss with equivalent river based units. Where river units or length are lost, common compensation measures could include the re-naturalising and re-meandering of heavily modified

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and straightened watercourses. Re-naturalising of watercourses that are found to be highly modified and historically straightened will in the long term provide a benefit to ecology and river health, whilst potentially providing gains in river length lost by the scheme.

The applicant appears opposed to this due to the impression this would cause larger environmental impacts. Although there may be some short term impacts, it is considered that the majority of short term impacts can be mitigated for through appropriate design and mitigation measures, following best practice, such as those found in the Manual of River Restoration Techniques by the River Restoration Centre. Any mitigation and compensation should also support the attainment of Good Ecological Status by 2027 in the waterbodies within the Order Limits and those connected waterbodies.

We do not provide exact examples and the advice given is aimed to support the scheme achieving no net loss which it current does not do. We also note that this may require looking beyond the DCO. It is noted that National Policy Statement for National Networks (2014), paragraph 5.25 states that the applicant may also wish to make use of biodiversity offsetting in devising compensation proposals to counteract any impacts on biodiversity which cannot be avoided or mitigated. Where significant harm cannot be avoided or mitigated, as a last resort, appropriate compensation measures should be sought.

### **Otters**

We do not dispute the survey methods used and agree they were completed in line with relevant standard guidelines. However, we disagree with the statement 'otters are assessed as likely absent from the order limits of Part B' as referenced in action A23 of Appendix A Response to RR-04 Environment Agency' [REP1-065], and as detailed in paragraph 9.8.2(c) of Chapter 9: Biodiversity Part B [APP-049]. The applicant has not taken into account historical records and as such has not taken a precautionary or full informed approach to their assessment, despite an acknowledgement that 'the desk study recorded 13 records of otter within the 2km search area'.

We also disagree with the statement, 'the assessment considered those records within the last 10 years, as earlier records may not be relevant to the current ecological baseline'. Although this may be applicable on smaller schemes, or for species that are in decline, otters are generally seen to be experiencing a favourable increase in their distribution and population and as such, it is expected that populations of otter could be higher than what records indicate. Furthermore, any future increase in otter population, as is the goal of nature conservation for the species, should be taken into account due to the lifespan of the road and its increased barrier to mammal movement. Nonetheless, a number of the records within 2km are within 10 years and again, these have not been considered in their assessment.



We do not disagree with search area used and have not requested this be widened as highlighted above, as records are present within the 2km boundary. The example of using 5km for highly mobile species was used to highlight and support our opinion that otters are widespread across the area.

The survey methodology used is effective for identifying rest sites within a distance (c.200m) that could result in disturbance. However, records provide an important indicator of their likely presence in the wider area and their potential to be transient within proximity to the scheme, which we believe is clear from the '13 records of otter within the 2km search area'. Even though otters were not detected within 250m of the scheme, local knowledge and opinion shared by those at the Environment Agency is that we consider them as present extensively across Northumberland. This is supported by known ecological characteristics of otters as they are known to have range of up to 32km. Therefore if records are found within 2km, we would expect them to be at least transient within the vicinity of the scheme which appears to have been acknowledged in the applicant's response. However no mitigation is proposed. This is seen in contradictory statements within 7.11 Applicant's Comments on Responses to ExA's First Written Questions [REP2-020], such as 'otter are assessed as likely absent from the order limits of Part B'. However, the applicant then states 'The Applicant accepts that there is potential for otter to use crossing points / watercourses as commuting routes, particularly associated with Part A', thus suggesting that there is potential for otters to use Part B for commuting albeit less frequently.

The failure to acknowledge the likelihood of otter in Part B is even more concerning when records within 2km are looked at in greater detail. Of the 14 records found by our search for within 2km of the scheme, six are records of dead otters / road traffic accidents on the A1, within the DCO limits. This clearly highlights that the current single carriageway road already forms a barrier to movement and has resulted in deaths of otters. By increasing the length of the existing culverts, this will further discourage otters to use them, and by increasing the width of the road, there is a higher potential for further road traffic collisions given the greater crossing distances.

As it may be unfeasible for culverts to be upgraded, we expect the assessment to be revised to acknowledge the likelihood of otters within Part B, and the increased risk the widened road and longer culverts are likely to pose on commuting otters. We would encourage as part of the assessment, that a form of connectivity assessment is undertaken to inform the mitigation required. We acknowledge this may seem a bespoke study for mobile mammals. However this is something seen on other major road schemes such as within the 'Deer Vehicle Collision Study' for the A9 Duelling Scheme. We cannot assume that otters that are acclimatised to the current pressures and provision of existing 'safe' passage will be equally encouraged to use longer culverts or avoid crossing the roads



without providing any further mitigation, such as making culverts more attractive to them to use. Any designs should conform to guidance on mammal passage, where risks have been adequately assessed.

In terms of mitigation design, it is noted that there is a culvert proposed at 51m with an encouraging 1.5m diameter, yet a longer culvert of 55m with only 0.6m diameter. Where possible, the largest sized pipe should be used to encourage use. We would welcome further details and justification regarding culvert diameter and lengths, and why the largest possible size isn't being used.

#### **7.9.1.1 Annex A - Culvert Mitigation Strategy - Rev 0 [REP1-066]**

We support the inclusion of the culvert mitigation strategy, which outlines what is currently there and the proposed mitigation measures. The reference to realigned channels as new improved watercourses needs to be set against the fact that the original channel will be lost. This needs to be reflected the left hand side of the table, current conditions in order to provide clarity and balance. The addition of accompanying maps would also improve the strategy.

It is evident that the applicant has mitigated against the impacts the scheme will have on fish passage, via the introduction of low flow channels, baffles and gravel beds within culverts. However, the applicant still needs to provide compensation for the loss of watercourses and habitats, which is not evident in the culvert mitigation strategy or the Outline Construction Environmental Management Plan (CEMP) - Rev 2 [REP3-013].

The mitigation strategy states large areas of wet woodland will be created. We believe this is an incorrect definition of the habitat created and should be reclassified as riparian woodland, unless it can be clearly demonstrated that wet woodland is being created. The areas of 'wet woodland' created appear to align with the comments made in 7.9.1 Appendix A Response to RR-04 Environment Agency [REP1-065] which claim 'c.38ha of wet woodland and c.12ha of wetland marginal planting'. However, we are unable to see the evidence of this and request that these proposals are included in the Landscape Mitigation Masterplan or similar plan.

We welcome the intention to improve 850m of Longdike Burn as a result of the 79.2m increased culverting of this watercourse, as reported in the action A-B40 of 7.3 Outline Construction Environmental Management Plan - Rev 2 [REP3-013] and 6.2 Environmental Statement - Chapter 9 Biodiversity Part A, table 9-23, EM0047 [APP-048]. However, we request that further details and clarity are provided on this proposal.

Improvements are described as 'nutrient management measures to address adverse impacts of run-off from agricultural land, aquatic planting and bankside stabilisation'. However, we would welcome evidence from the applicant



demonstrating that nutrients from agricultural land are impacting the Longdike burn at the proposed improvement site. In particular, is there an identified source and point of entry to the watercourse that needs to be addressed? What type of work bank stabilisation is proposed? We would welcome early engagement during the development of these measures to ensure they are appropriate and effective. We are also able to provide alternative locations to applicant in order to help deliver mitigation and compensation for this scheme, on waterbodies that are hydraulically linked to the DCO and in need of improvements to improve their WFD status.

### **7.3 Outline Construction Environmental Management Plan (CEMP) - Rev 2 [REP3-013]**

#### **Protection of protected species**

Action S-G8 states that 'Any tree felling will be carried out by experienced contractors to reduce direct mortality of protected species according to agreed felling methods between contractors and the ECoW'. A 'reduction' is unacceptable and may constitute an offence under UK and EU law if tree felling results in the disturbance, harm, death or damage to resting places of a number of protected species. If any tree felling cannot avoid an offence then it must either be avoided or a method statement produced and likely licence acquired to enable tree felling whilst ensuring protection and mitigation.

Action A-B17 states that a pre-commencement walkover survey for otters. However, it does not provide timescales nor does it identify the procedure if an otter rest site is found within the scheme.

#### **Invasive Non-Native Species (INNS)**

With regards to action S-B8, we wish to review Biosecurity Method Statement (reference to S-B8) once produced. Therefore, we request that this action is updated to reflect this.

#### **ECoW Responsibility**

Table 2-1 (Responsibility Matrix - Ecological Clerk of Works (ECoW) (main contractor), states that ECoWs are responsible for ensuring that all ecological mitigation measures are implemented on site and ensuring that the requirements of ecological licences. However, action B-B28 states that 'monitoring will be undertaken throughout the construction period by a site-based ECoW. The ECoW will ensure construction works remain compliant with mitigation measures prescribed within the outline CEMP and then in the CEMP produced by the main contractor'. The role and responsibilities of the ECoW suggests that the ECoW responsible for enforcing compliance with legislation and planning conditions. They do not have legal, and likely do not have contractual powers, to do so and under Construction Design and Management Regulations 2015 they are the responsibly of the principle contractor. As defined by CIEEM (<https://cieem.net/i-am/current-projects/accredited-ecow/>), ECoWs 'oversee the management of the risks on construction sites'.



We welcome the requirement for a competent, qualified and experienced ECoW during construction that is either an Accredited ECoW by CIEEM or a member of The Association of Environmental Clerks of Works (AECoW). As such, it should be made clear that the ECoW's responsibility is to monitor compliance with environmental legislation, policy or mitigation and advice on compliance with the environmental planning conditions, with preparation of compliance reports for clients and stakeholders and advisory reports for site managers/staff.

### **Monitoring**

With respect to table 5-1 (Monitoring to be Carried out During Construction) it states that monitoring of the freshwater environment will be undertaken by the Environmental Manager (ECoW) and the frequency is 'As required, for instance during fish rescue activities.' It also states that surface watercourses located within 50m of earthworks will be monitored/inspected to identify any pollution as a result of e.g. silt, fuel or chemicals on a weekly basis by the Environmental Manager. This should be updated to comply with the updated S-GS13 which states: 'During construction works surface watercourses located within 50m of earthworks will be monitored/inspected regularly. Watercourses in high risk areas and where construction activities are more intensive will be subject to more regular checks, and clear actions will be defined by the main contractor in consultation with the Environment Agency, such as reporting when limits (such as turbidity NTU levels) are reached so that pollution incidents are appropriately reported to Environment Agency and issues are resolved. A baseline will be established prior to the commencement of construction.'

### **Watercourse Protection and Silt Treatment**

The inclusion of additional silt mitigation measures and concepts such as those in action S-W9 are highly welcomed. S-GS4 states 'pollution control measures including detention basins and filter drains will be incorporated into the drainage design of the Scheme.' This appears to indicate that the permanent structures designed to handle the operational phase and not the construction phase may be used. We would like to reiterate that detention basins are designed for the operational phase of the scheme, as such these should not be relied upon to deal with the large volumes of contaminated water that are associated with construction activities, as they are highly unlikely to be able to cope, and therefore result in pollution incidents and impacts upon ecology throughout the scheme. We recommend that dedicated sediment traps and settlement ponds should be designed into the scheme, and where these are unlikely to be effective, treatment systems such as lamella tanks and chemical dosing should be costed into the scheme.

### **Larger area for construction required on the north bank, increasing pollution risk to River Coquet**



A larger area of exposed soils on the northern bank will result in a greater risk of the creation and accumulation of site water with a high sediment load. Due to the nature of the works, there will be limited area to treat the water through standard methods such as settlement lagoons. A bespoke plan for treating the anticipated volumes and chemistry of the water should be developed, this must take into account any permits that may be required taking into account the designated receiving waters if using chemical dosing. The outline CEMP does not appear to identify the higher risks posed to the designated watercourse at this location. By not acknowledging the greater risk at the early stages, this risks sediment management not being adequately designed into the temporary works.

### **Watercourse mitigation / Compensation**

The suggested mitigation of 38ha of 'wet woodland' and 12ha of 'marginal planting' is not contained within table 3-1- Register of Environmental Actions and Commitments: The Scheme. Therefore there does not appear to be a defined commitment for mitigation and compensation for the impacts on the watercourses. It would be beneficial to know if the feasibility and locations of these been assessed? If so, where is the mapping associated with these as they appear to be missing from the Landscape Mitigation Masterplan. We would also welcome clarification regarding whether the 'wet woodland' is wet woodland, or if it's riparian planting? Furthermore, we would welcome clarity regarding whether protection measures from grazing pressures for this mitigation been established.

**Action A-B40** refers to compensation due to the direct loss of ~35m of the Longdike Burn due to the Bockenfiels Culvert (12) extension. It is understood that improvements will be delivered on a ~850m section of the Longdike Burn within the temporary boundary. Although we welcome compensation for the direct loss of ~35m of watercourse, we request further details on this proposal.

As stated previously in this letter, improvements to the Longdike are described as 'nutrient management measures to address adverse impacts of run-off from agricultural land, aquatic planting and bankside stabilisation'. However, we would welcome evidence from the applicant demonstrating that nutrients from agricultural land are impacting the Longdike burn at the proposed improvement site.

**A-W2 – A-W13** (excluding A-W7, 10, 14) and **B-W1** details mitigation that will be delivered through culvert design to manage risk to the water environment and improve ecology. The majority of this mitigation focuses on maintaining fish passage due to the culverting of watercourses. However the localised impacts of the scheme due to the culverting of watercourses will be significant. There is no reference as to how the applicant will provide mitigation and/or compensation for the culverting of watercourses and the resulting loss of riparian and river habitat.

We welcome the opportunity to be involved in discussions at the detailed design stage in relation to **A-W16**, construction of culverts and outfalls on the Longdike Burn



The culvert mitigation strategy indicates a loss of 543.3m of riparian and river habitat whereas Annex A - Approach to the Assessment of Losses and Gains of Watercourses [REP2-010] suggests the total length to be 427m. This is a discrepancy of 116.3m. We would welcome clarification on the total length of riparian and river habitat that will be lost due to the culverting of watercourses.

The Environment Agency must be consulted on the detailed CEMP. Therefore, we request the inclusion of a requirement stating that the detailed CEMP will be approved by the Secretary of State following consultation with Northumberland County Council and the Environment Agency.

### Geomorphology

With respect to action S-W6, the CIRIA Culvert, Screen and Outfall manual, section 9.2 states that a watercourse's hydromorphology should be considered in the design of culverts, screens and outfalls. When undertaking the design of new or replacement culverts, screens and outfalls (including their removal) it is important to assess and mitigate the impact of hydrogeomorphology. Ideally this should be undertaken by consulting an expert geomorphologist. This is to ensure that the response of the watercourse and sediment regime is fully understood and that the siting and design has a beneficial or minimal impact and works with natural processes. Therefore, we welcome the commitment to take hydromorphological considerations into account during the design of the scheme's culverts. However, we are concerned by the phrase "where appropriate", as this would imply divergence from best practice. Section 9.6.7 of this guidance outlines 4 broad principles that should be applied in the construction of new culverts.

1. When installing the culvert, the invert should be below the existing natural bed level. The design principal is to maintain bed material diversity through the culvert and avoid conditions where the culverts flat surface will be exposed. Appropriate burial depths for the retention of a natural bed are often in the region of 300mm – 600mm.
2. Maintaining the natural channel width, bed level and slope will provide adequate water velocity and depth for fish passage. Box culverts with wide flat floors should be avoided on fish migration routes if low flow depths (<200mm) occur, unless a low flow notch is provided. The installation of baffles in the invert of the culvert can improve conditions for fish and invertebrates by slowing the flow and locally increasing depth and encouraging the accumulation of gravels in refuge areas behind the baffles.
3. Bottomless culverts are recommended as these will maintain a natural bed. However, where this is not possible the hard culvert invert should be set below bed level.
4. Other features such as fish blocks, individual baffle structures or eel matting may be re-fitted through existing pre-cast culverts to provide refuge and



diversity, improve passage and to help accumulate and retain material and improve conditions for fish, eels and invertebrates.

It is noted that there is a huge variation in the depth of “natural” bed proposed for the culverts, ranging from 100mm to 250mm. It is also unclear whether any of the culverts have a 300mm deep bed. Therefore, if the above principles are not being applied to new or existing culverts, we would welcome the inclusion of narrative /reasoning behind this decision.

With respect to the realignment of sections of the Fenrother, Kitty Carter and the tributary of the Thirston Burn, we support the ambition to provide varied substrate features and flow dynamics within the watercourse channel and assist the movement of aquatic species. The realignment of these streams creates an opportunity to significantly improve these streams, and we would welcome the opportunity to work with the applicant in achieving this. Mimicking the existing channel conditions would be considered a missed opportunity, and failure to deliver on the applicant’s commitments to the biodiversity challenge. In particular, the Government’s Road Investment Strategy states that there should be ‘no net loss of biodiversity from Highways England’s activities, both from new schemes and its operational estate and progress towards the target of delivering a net gain in biodiversity by 2040. The mitigation and compensation measures outlined in the Culvert Mitigation Strategy [REP1-066] and in the outline CEMP provide a good framework to develop and build upon. However, it needs to acknowledge that culverting a watercourse leads to:

- Reduced ecological value within concrete channels and with reduced light.
- Loss of and adverse effects on environmental features and wildlife habitat including disruption of the linear habitat of a watercourse, stopping species from spreading naturally.

Measures such as baffles, fish easements, the establishment of natural beds and designing culverts around hydromorphological principles are means to prevent, reduce or control the adverse effects of culverting these watercourses. These should not be confused with measures to compensate for the loss of the watercourse through culverting.

It is considered that the length of watercourse lost or altered by the scheme is an under estimate as it doesn’t take into account headwalls, scour protection, bank protection etc.

The proposals for wetlands, wet woodland and along the Longdike Burn are welcomed, but we would like further details around these suggestions. We have some concerns that terrestrial habitats may not adequately compensate for the loss of a river or stream to a culvert.

### **6.32 Environmental Impact Assessment - River Coquet Geomorphology Modelling Assessment [REP3-009]**

The revised Geomorphology assessment has acknowledged our concerns and demonstrates that the proposals will not lead to any deterioration in the River Coquet.

### **6.34 Environmental Impact Assessment - Surface Water Outfall Strategy [REP3-011]**

We welcome the inclusion of setback outfalls on the Floodgate Burn, River Lyne, Earsdon Burn, Longdike Burn, Denwick Burn and White House Burns to reduce the loss of riparian habitat vegetation.

### **Appendix A Response to RR-04 Environment Agency**

The applicant's response to reference A.2, A.5, A.81, and A.82 refers to the fact that it is not viable to create new lengths of open watercourse to mitigate for the loss of watercourse as a result of the scheme. We would like to confirm that we agree with this, and that at no point have the Environment Agency suggested the creation of new lengths of watercourse to provide mitigation or compensation for the scheme.

### **Annex C - Figure 11.7 Potential Contamination Sources - Rev 0 [REP1-068]**

Developments on or adjacent to Foot and Mouth burial or disinfectant sites require authorisation/ permission from the Animal Health Protection Agency (APHA).

### **6.5 Environmental Statement - Figure 11.2 Superficial Geology Part A [APP-114]**

Further information is required. The superficial map provided still identifies peat in two of the most southerly borrow pits whilst the borehole logs do not corroborate this. There is no assessment/discussion as to the presence or not of peat and what its relevance is in terms of impacts from dewatering.

Dewatering these could impact the deposits on the east side of the carriageways (excluded from the scheme). The sand and gravel deposits and limestone formations potentially link scheme to licenced abstraction and private water supplies. Dewatering activities should assess risk to these.

### **Flood Risk**

We have reviewed 7.9.1.2 Annex B - Flood Risk Addendum - Rev 0 [REP1-067] and 6.30 Environmental Impact Assessment - Flood Risk Outside Order Limits [REP3-007]. The Flood Risk Addendum [REP1-067] now discusses the possibility of moving the piers of the proposed bridge structure over the River Coquet. The Addendum states that during a 1 in 1000 year flood event the calculated increase in depths is 0.25m. Although any increase should be avoided, and ideally flood risk should be reduced, there is no increase in risk to any receptors up or



downstream. Therefore, we have no flood risk concerns in this regard.

We welcome the visual representation of the increased flood extents for the ordinary watercourses. We agree that although there is some increase in extents for certain locations, these are minimal and do not increase risk to receptors. We also welcome that local landowners will be consulted with regards to flood extents.

**Statement of Common Ground**

We are working with the applicant to address the issues outlined in this letter and in our previous correspondence.

