

Mr Mark Stoneman
Highways England
Lateral 8 City Walk
LEEDS
LS11 9AT

Our ref: NA/2020/115170/01-L01
Your ref: TR010059
Date: 29 October 2020

Dear Mr Stoneman

A1 IN NORTHUMBERLAND: MORPETH TO ELLINGHAM MORPETH TO ELLINGHAM RELEVANT REPRESENTATIONS (SEPTEMBER - OCTOBER)

We have reviewed the Development Consent Order (DCO) application, Environmental Statement (ES) and supporting documents and have a number of concerns regarding the proposed development and matters within our remit. We therefore make representations in relation to the following areas:

- 1) Net loss of biodiversity
- 2) Habitats of Principle Importance
- 3) Otter and water voles
- 4) Detailed Construction Environmental Management Plan (CEMP)
- 5) Fish
- 6) Geomorphology Assessment
- 7) Discharge of Treated Water and Outfall Construction
- 8) Water Framework Directive Assessment
- 9) Surface Water Drainage
- 10) Drainage Network Water Quality Assessment (DNWQA)
- 11) Flood Risk Assessment
- 12) Groundwater
- 13) Historic Landfill Sites

Biodiversity No Net Loss

Issue and impact

The net loss of 57.69% of watercourses in Part B of the scheme is an unacceptable loss considering no mitigation or compensation has been suggested. Therefore, we object to the proposed development as submitted.

In addition, considering this loss of watercourse is due to the extension of non-wildlife friendly culverts that will create an even greater barrier to the movement of



wildlife and increase fragmentation of habitats, the impact upon biodiversity is expected to be much higher. This contradicts the objectives of the National Policy Planning Framework (NPPF) and the Water Framework Directive (WFD), which seek to enhance and protect biodiversity and provide net gains for biodiversity. Furthermore, it fails to comply with Highways England's (HE) Biodiversity Plan which states that 'Roads can be designed to minimise their severance effect, for example using underpasses or green bridges to link habitats under and over our road network'. We believe that, as a minimum for the impact the scheme is likely to have, culverts should be upgraded to be mammal friendly to improve the current conditions, offsetting for the impact of the extensions and current blockage to wildlife movement.

In addition, we do not understand the justification for using BREEAM in terms of Biodiversity Net Gain and No Net Loss assessments. Using BREEAM definitions for No Net Loss in a non BREEAM scheme does not seem suitable for a Nationally Significant Infrastructure Project and is not common practice, as such we do not recognise the definition that no net loss has a range of 95-104%.

Without a suitable definition for No Net Loss that is in line with current best practice we have to make the assumption that anything that results in a habitat loss, is a loss. As such, Part A also results in a net loss due to the loss of watercourses. Watercourses provide important links between designated sites, such as Site of Special Scientific Interests (SSSIs). Any reduction in connectivity between habitats, especially those that are designated and protected possess a severe threat to species ability to survive and adapt to changing climatic conditions. Again, no mitigation efforts have been suggested.

Given the loss of habitat as a result of the scheme, in particular the loss of 57.69% of watercourses in Part B, we currently have significant concerns regarding the proposals and consider that further mitigation measures are required to mitigate and/or compensate for this loss.

Solution

To overcome our objection, the applicant will need to carry out and submit documentation on how this loss of habitat and conflict with the WFD and the NPPF will address the concerns highlighted above. The following information should also be submitted as part of the DCO application:

- Information demonstrating how mitigation and/or compensation will be applied to the unacceptable loss of 57.69% of watercourses in Part B, as well as 5% watercourses in Part A. This mitigation will need to link to the WFD waterbody catchments these watercourses belong to, and provide mitigation measures within those catchments;



- Detailed design information of the reinstatement and enhancement of the watercourse crossings where natural bed features and mammal passage has not been currently included in the design; and
- Revised estimate of biodiversity loss, no net loss or gain after the review of an appropriate definition of No Net Loss.

Habitats of Principle Importance

Issue and impact

Part A summarises a loss of approximately 200m of River Habitat of Principle Importance (HPI). This is not compliant with NPPF, which seeks to protect and enhance the environment. Stating that a 5% loss is not classed as a biodiversity net loss is not compliant with current best practice, as stated in our subsection; Biodiversity No Net Loss.

Considering Part A includes a new offline alignment with several new culverts and the extension of others within the online widening section and given this level of impact upon watercourses, the loss of only 200m (5%) of is not ecologically sound. No mitigation or compensation is offered for this loss.

Culverting of watercourses drastically decreases their function, productivity and ecological value. This loss has been recognised in Chapter 10, section 10.10.31 where it states 'Overall, there is an increase in the total length of culverts and as a result there would be a permanent loss of natural channel associated with Part A along each of the watercourses in the Study Area'.

Any overall loss and impact will also require considerations in terms of the WFD. Furthermore, Chapter 9 section 9.8.9 states 'With regards to potential impacts to watercourses (running water – G2), excluding ditches, Part A would result in the direct, permanent loss of approximately 750 m of watercourse. Loss would occur to facilitate the construction/extension of culverts. This includes the loss of approximately 715 m of watercourses considered of Local importance and approximately 35 m of watercourse considered of National importance, Longdike Burn.'

This is much greater than the 200m the ES summarises. It is assumed that the applicant has come to this conclusion due to the 540m of new channel due to be created as stated in section 9.9.6. However not only this is a net loss, but this is not a like for like replacement and channel realignments are unlikely to carry the same biodiversity value as previous channels. No designs for new channels have been submitted, and plans appear to show straightened channels, which provide a very low biodiversity value.

Part B will also result in the loss of a further 285m of watercourse through a combination of new or extensions to existing culverts. The descriptions of the existing culverts indicate that none of them have been designed to allow the



development of a natural bed within the structures, with the A1 culvert on the Shipperton Burn clearly showing a step and channel incision at the downstream end.

All the culvert extensions propose to replicate the existing culverts, with no acknowledgement of the impacts these may have on WFD status, stream morphology or wildlife. Mitigation through design, or compensation for the loss of channel is not considered. This is particularly highlighted on the:

- Shipperton Burn where the step at the outlet to the culvert is a clear issue for fish migration and yet not mentioned nor addressed; and
- Kitty Carter Burn Southern crossing and White House Burn crossing are obvious pathways for nutrients and fine sediment to enter the watercourse. Despite listing these as WFD pressures for the relevant waterbodies, yet not considered and addressed.

In Part A and B it is proposed to realign several watercourses. The design criteria “the design of the new channel would maintain a similar channel profile and dimensions to the existing watercourse to mimic existing conditions. Boulders would be placed within the new channel to provide varied substrate features and flow dynamics within the watercourse channel” is not acceptable. There is a clear opportunity for betterment, and we welcome the commitment to “further develop the design during the detailed design stage alongside further consultation with the Environment Agency and Northumberland County Council as Lead Local Flood Authority”.

Opportunities to create more natural, sinuous watercourses and water dependant habitats have not been considered, such as realignment of Fenrother Burn. As such, we believe there are many missed opportunities to compensate for the impact of the scheme, thus further increasing the biodiversity net loss.

Solution

To overcome our concerns, the applicant will need to carry out and submit a design of the mitigation and compensation of channel creation as part of the DCO. The design should be developed with a specialist geomorphologist support in order to maximise the biodiversity and hydromorphology benefits of the new channel alignments

Otter and Water Vole

Issue and impact

The ES addresses the highly mobile nature of otters within the assessment for Part A. Pre-commencement surveys as outlined with DM008 are essential due to their large range and as the surveys are outdated, this form of survey should be completed within a timescale allowing a European Protected Species Mitigation Licence to be applied for if new resting places are found.



The lack of consideration for otter in Part B is unacceptable, given that they are a highly mobile species and are slowly naturally expanding their ranges. Therefore, we object to the proposed development due to inadequate assessment of otters. Our records show 24 records of otter within 5km of Part B. Given they have ranges of up to 32km, there is a high potential for otter to be as a minimum, transient in the local area. The scheme will become a permanent feature in the landscape and become a new major barrier to movement should otter colonise the area or expand current ranges. Therefore the operational phase of the scheme is likely to cause mortalities of otters due to the lack of wildlife friendly culverts or crossings. The potential for otter to be present in a forward looking manner is required, giving further consideration to risk of mortality in the operational phase.

We accept the assessment that water vole are likely absent from Part A and B, and that precautionary pre-commencement surveys should be undertaken alongside otter surveys.

Solution

The mitigation designs and the scheme drawings should be updated and take into consideration the impact of the development on otters. Given the known presence of otter in Part A, and potential in Part B, wildlife crossings should also include mammal fencing to ensure otters and other mammals, such as badger are directed towards wildlife friendly crossing points. We note that there is some badger fencing designed into the scheme, this needs serious consideration for other potential mammal crossing points.

White Clawed Crayfish (WCC)

Issue and impact

In Part A of the scheme, we have two records of white-clawed crayfish on the River Lyne, c.1km and c.1.2km from the current alignment. This has not been identified within the ES. Therefore, it is considered that the impact of the development on the WCC has not been satisfactorily assessed. We therefore object to the proposed development as submitted.

Though reported as unconfirmed, these records are from 2018, 1 year after the surveys were undertaken for the DCO application. Only one survey was undertaken in Part B, this was undertaken using a novel and technique that is in its infancy. Therefore the validity of the results should be considered when assessing the likelihood of WCC being present within the DCO limits.

Solution

The potential for WCC to be present on the River Lyne must be considered and reassessed within the zone of influence of the scheme, along with any mitigation requirements submitted within the ES. Furthermore, the validity of the results for Part B must be considered when assessing the likelihood of WCC being present.



Great Crested Newt

Issue and impact

We are satisfied with the approach taken in respect to great crested newt, despite the time since the initial surveys. We agree that further surveys are needed in Part A as presence was confirmed from surveys undertaken in 2017 and are aligned with historic records, indicating population in two main areas; near Burgham Golf Course and Tile Kiln Rush, Felton.

As part of the updated surveys to inform both the licence and mitigation requirements we believe that, given the time since the original surveys, eDNA surveys as a minimum should be undertaken of all ponds within 500m of the known clusters, such as ponds A7 and A14. Despite being segregated by barriers such as the A1, there are still potential routes for migration.

Furthermore, there appears to be some disparity between the logic used for survey effort and compensatory habitat for great crested newt. For example, Pond A14 has a 'Good' HSI score, yet is not to be surveyed due to the justification that the A1 is a barrier to movement and change is not expected in the time frames of this assessment, however compensatory habitat for Pond A19 is on the opposite side of the A1. If the A1 it is not deemed a barrier to movement north of the Coquet River, then for robustness, ponds such as A7 and A14 that are segregated from known populations by similar barriers should be resurveyed for robustness, especially given the time elapsed since the eDNA survey in 2016.

Solution

Further justification for compensatory habitat that is segregated from known populations by the A1 alignment, such as by compensation scheme by pond A19 should be submitted as part of the DCO.

There also appears to be work within 500m of Pond A21, with no compensatory habitat provided. This should be addressed. The results of updated surveys should be submitted as part of the DCO and the reassessed in the ES.

Detailed Construction Environmental Management Plan (CEMP)

Issue and impact

Fish species, great crested newt, white clawed crayfish and otter are protected species and receive protection through UK and EU legislation. These species have been found to be present or potentially present at the proposed development site. In addition, Invasive Non-Native Species (INNS) have also been found to be present on site and have been identified as requiring management.

The greatest threat to the environment through construction is the release of site water with high suspended sediment into the watercourses. This is detrimental to



the water environment and associated ecology and is predominantly due to the exposure of topsoil's and compaction of subsoils, leading to high rates of soil erosion and surface water runoff with high suspended solids, leading to a risk of sediment pollution to waterbodies. The most effective method for managing this risk is to phase the stripping of topsoil's, as the topsoil provides a highly efficient protective layer that aids in interception of precipitation and infiltration into the ground. The additional cost of phased stripping can often be cost effective when compared to intensive and often costly methods to treat site water with a high suspended solids content.

S-GS13 states a weekly inspection of watercourses, this seems inappropriate considering the high number of watercourses, and the risk posed by the construction of a large linear scheme. It is advised that watercourses in high risk areas and where construction activities are more intensive are subject to more regular checks, and clear actions defined such as reporting when limits (such as turbidity NTU levels) are reached such so that pollution incidents are appropriately reported to Environment Agency and issues are resolved.

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.

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.

Environmental pollution risks should be monitored by a suitably experienced Environmental Clerk of Works (EnvCoW) who is a member of organisations such as The Association of Environmental Clerks of Works (AECoW). This role is likely to differ from an Ecological Clerk of Works, who is primarily focused on monitoring the protection of protected species and habitats, as is ideally accredited by CIEEM (<https://cieem.net/i-am/current-projects/accredited-ecow/>). The responsibilities of the team required to fulfil the EnvCoW and ECoW should be discussed with the Environment Agency before being clearly defined in the CEMP. It should also be noted that, by definition, a Clerk of Works role is to 'oversee the management of the risks on construction sites' (CIEEM <https://cieem.net/i-am/current-projects/accredited-ecow/>), they are there to monitor site activities and it is the contractors responsibility to ensure they are complying with environmental and wildlife legislation.

Solution

The Outline Construction Environmental Management Plan (CEMP) details a number of measures in which those species listed above would be protected and



invasive species managed. Although checks are described within the CEMP, a detailed protected species mitigation plan as part of the CEMP should be produced as part of the DCO.

We recommend that a requirement is included in the DCO requiring the submission of a Detailed CEMP to protect against damage and mitigate any damage to fish species, great crested newt, white clawed crayfish and otter as well as manage INNS. Without this requirement, we would object to the proposal because it cannot be guaranteed that the development will not result in harm to fish species, great crested newt, white clawed crayfish and otter as well as cause spread on INNS. It is not necessary for the Detailed Construction Environmental Management Plan to be provided prior to the granting of planning permission.

Fisheries

The proposed development has the potential to have an adverse impact on fisheries. Further details regarding specific impacts to fish are outlined below.

Issue and Impacts - Timing of Works

S-W12 of the Outline CEMP refers to avoiding critical periods for fish migration and spawning. We agree that in water works should be carried out between 1st June to 30th September to avoid sensitive period for migratory fish which is between 1st October and 31st May inclusive. This is to avoid disturbance to spawning fish and/or their habitat and eggs. If work is carried out outside this window there is a risk of committing an offence under the Salmon and Freshwater Fisheries Act 1975 (SAFFA). It is noted that one of the DCO documents states that work will be undertaken during the spawning period.

Solution

We would welcome clarity regarding the timing of works. It is vital that fish passage should be maintained at all times to ensure the works do not present a barrier to fish movement. Failure to maintain fish passage could result in committing an offence under SAFFA and the Eel Regulations 2009 (Eel Regs).

Issue and Impacts - dewatering

With regards to dewatering and fish, S-W12 of the outline CEMP refers to the creation of a dry working area. This could have a potential impact on fish.

Solution

A fish rescue should be undertaken prior to any in-channel works and fish captured relocated a safe distance away. This must apply to all in water works and must be reflected in the CEMP. The pump(s) used for dewatering will need to be appropriately screened to prevent ingress of fish. Screening is a requirement of both SAFFA and Eel Regs. Any remaining fish found in dewatered areas should be rescued with hand nets and relocated a safe distance away. Fish Rescues must be carried out to best practice and with appropriate licence e.g.



FR2 - Application for authorisation to use fishing instruments other than rod and line.

Issue and Impacts - Bank Excavation Activities

Lamprey juveniles (ammocoetes) and European eels may be present in the wetted sediment on the channel edge and could be adversely impacted.

Solution

Any excavated sediment should be left on the channel edge below or close to low water mark to allow eels to return to the water. After a period of 24 hours the material can then be removed. We would welcome reference to this within the DCO documents.

Issue and Impacts - Poisonous matter

S-B14 of the outline CEMP refers to working with concrete in or within close proximity to waterbodies.

Solution

In order to minimise the impact on fish, contamination of the river by any cementitious material or leachate from mixing and/or applying concrete must be avoided as this can be lethal to fish and is an offence under SAFFA (Part I, sect 4.1). Dry working when using concrete, allowing concrete to dry before it is exposed to water and the use of quick drying cement should reduce any associated risk. We would welcome reference to this within the DCO documents.

Issue and Impacts - Piling

Piling can pose a barrier to fish and adversely affect fish migration as a result of noise and vibration.

Solution

We require confirmation regarding the timing of works and the proposed piling within the vicinity of the watercourse. It is vital that fish passage is maintained. If possible piling in or near water should avoid the sensitive period for migratory fish (Oct –May). Alternatively, piling activities could be restricted to low flows. During a rise in levels we would expect piling activities to stop and not restart until levels drop; this will enable windows for migratory fish to pass by the intake and outfall construction areas.

Section 1.2.5 of the OCEMP refers to night-time working in relation to the construction of the River Coquet bridge. Confirmation of the timing of all works should be provided as part of the DCO. Piling should also be restricted to day time hours.



Issue and Impacts - Culverts

We are happy that fish passage has been considered for most of the proposed new culverts and culvert extensions. However, the ES fails to make reference to fish passage for the culvert extension on the Shipperton Burn.

Solution

The existing culvert appears to be perched and the extension to ~47m long may make fish passage even more difficult. Brown trout were recorded during electric fishing surveys. Therefore fish passage needs to be considered at this site.

Appendix 10.7 Geomorphology Assessment

Issue and impacts

River Coquet parameter 10

The Geomorphology Assessment, Appendix 10.7 has outlined the current condition of the Study Reach, and has assessed the impact of the temporary and permanent works on the geomorphological processes (erosion, transportation and deposition of sediment) over 4 scenarios and 7 flow regimes.

The 7 flow regimes tested are baseline (existing), 10 year, 5 year, 485 year, 525 year, 100 year, 30% climate change and 100 year , 50% climate.

1. Scenario A – Existing (baseline) conditions with no new structures;
2. Scenario B – Design prepared for the DCO application;
3. Scenario C – A design option which relates to a channel width constrained to the width of the Southern pier with no bypass flow behind the Southern pier
4. Scenario D – A design option which relates to a channel width constrained to the width of the Southern pier with bypass flow behind the Southern pier.

In the absence of any modelling the methodology outlined in the report is suitable, provided the data used is accurate and robust. It is noted that modelling was scoped out on flood risk grounds and not hydrogeomorphological grounds.

The report describes the study reach as a predominantly bed rock channel with localised pockets of sediment, ranging in size from boulder to coarse sand. In general, the dominance of bedrock in the channel and on the banks means the channel is very resilient. This dominance of bedrock makes the reach a sediment transport reach, meaning that pockets of mobile sediment disproportionately valuable (at the reach scale) as they add diversity to the flow regime and instream habitat.

The report rightly argues that the boulders are hiding or protecting the smaller sized sediment, and that the presence of moss suggests long term stability. However, as these boulders are sitting directly on bedrock, the forces necessary



to initiate movement would generally be less as they are not embedded into the bed. Movement to or the loss off any boulder will have a disproportionately high impact on the surrounding sediment given the “hiding effect”. Understanding how these boulders will respond to the new flow regimes, resulting from the new bridge pier are crucial for assessing the risks to the current sediment regime.

The methodology used in the report relies on accurate field data to develop the findings. There are a number of areas where the robustness of the data used is weak or not clearly explained. We therefore believe that the report as it stands does not clearly demonstrate that the construction and operation of the proposed new River Coquet bridge do not cause significant alteration to the fluvial processes operating within the study reach, and have no adverse impact on either the sediment entrainment and transport capability of the watercourse or the erosion and depositional processes.

Solution

Given our concerns around an adverse change to the form and processes of the reach, we have significant concerns regarding the proposed development and require further information and clarity on the following:

1. Clarity of the cross section used to produce the physical parameters such as channel width, area, wetted perimeter, hydraulic radius. The cross section needs to be accurate, to scale, and must show the 4 scenarios and the levels of the 7 flow regimes;
2. Relying on the 1 cross section to generate the conclusions feels weak. Further cross sections up stream of and downstream of the new pier will create a much better picture, and more confidence in the findings;
3. Clarity on the flow data used. How were the numbers for velocity and discharge derived? What is the reasoning behind using a 485 and 525 yr flow, why no 100yr flow. The description of mean flow, Q10 and Q5 in the executive summary appears to be different to the flows used in Table 4.3;
4. Rational for using a single manning’s number for all scenarios. The number feels high for a bedrock channel, especially mid channel where the majority of the sedimentary deposits are located;
5. The data collected during the sediment analysis does not truly reflect the composition and makeup of the mobile sediment within the reach. The inclusion of bedrock in the sediment analysis massively skews the results. The sediment analysis needs to focus on mobile sediment rather than the makeup of the bed;
6. The footprint of the sheet piling and the foundations of the pier will be greater than the pier itself. The impact will be greatest during construction, has this been taken into account;
7. Appendix 10.4 implied that the working area was vulnerable to low magnitude, high frequency flood events, meaning that the risk to the



- working area is high. Appendix 10.7 does not highlight this, therefore will this risk be adequately assessed and mitigated for within the CEMP; and
8. It's also worth noting that the cross sections shown in the two geomorphological reports is different. Why is this, and does it influence the outputs from question 1?
 9. A detailed field map/plan should be produced that shows in-channel features, the location of the different flow types, any depositional areas, along with the accurate location for the two piers and the footprint of any temporary works.
 10. Given that we now know that the existing pier was built within the active channel, does this change the interpretation of channel form downstream of this point? The previous summary suggests that the widening of the channel, the formation of the bar etc. and natural processes. Is it possible that this change was driven by the work associated with the first bridge?

In conclusion, overall, the geomorphology assessment methodology is appropriate and assesses all of the areas that we would expect to see in a report of this nature. However, we would welcome clarity regarding the above matters. Until this information is provided and the report is updated, we are unable to verify the assessment, the impacts and the conclusions outlined in the assessment.

Discharge of Treated Water and Outfall Construction

Issue and impact

Any outfall structure / discharge that is required to be constructed near a Main River may require a flood risk activity permit under the Environmental Permitting (England and Wales) Regulations 2016. As part of this application the Environment Agency will assess the application in relation to Fisheries, Biodiversity and Geomorphology, we'll also assess its compliance with the Northumbria River Basin Management Plan (RBMP) (2016). The RBMP states that the water environment should be protected and enhanced to prevent deterioration and promote the recovery of water bodies.

Solution

The development should be designed to help meet the objectives of the Northumbria RBMP and to promote the recovery of water bodies. The DCO application should also take into account impacts to protected and notable species and habitats along these watercourses, with survey information informing these impacts within the permit.

The design of any outfall should be sympathetic to the water environment with low impact design options that mimics greenfield runoff should be considered, and not drain onto or impact Habitats of Principal Importance.

Water Framework Directive (WFD) Assessment

Issue and impact

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HE must have regard to the Northumbria RBMP and the legally binding environmental objectives it contains. The Northumbria RBMP has been prepared in line with Ministerial guidance and fulfils the requirements of the WFD. With the exception of some of fish easement proposals, the scheme does not identify nor deliver any measures identified in the Northumbria RMPB that are required to achieve its waterbody objectives.

The WFD Assessment for the scheme concludes there will be no detrimental impact or change to the WFD status of the four river catchments within the DCO boundary and connected waterbodies if appropriate mitigation measures are implemented. The four catchments are:

- Wansbeck from Font to Bothal Burn (HMWB)
- Lyne from Source to Tidal Limit (not HMWB)
- Longdike Burn Catchment (not HMWB)
- Coquet from Forest Burn to Tidal Limit (not HMWB)

Section 1.4 of the WFD Assessments for both Part A and Part B details the legislative framework around WFD, making reference to the 4 overarching objectives of the WFD;

Objective 1: To prevent deterioration in the ecological status of the water body.

Objective 2: To prevent the introduction of impediments to the attainment of Good WFD status for the water body.

Objective 3: To ensure that the attainment of the WFD objectives in other water bodies are not compromised.

Objective 4: To ensure the achievement of the WFD objectives in other water bodies within the same catchment are not permanently excluded or compromised.

Section 1.4.14, Part a. of the assessment process refers to 'Screening of the preferred option'. The WFD assessment should be used to inform the Options Appraisal stage and not just be limited to the schemes preferred option. It is unclear whether a WFD assessment been carried out for any of the options that have been scoped out and what the conclusions were for those assessments. This information should be included within the WFD assessment.

The WFD assessment methodology applied to HE preferred option for this scheme appears to be appropriate. However the level of detail within the assessment itself is poor. We tend to agree that overall the scheme will not result in a WFD deterioration at a waterbody scale and we acknowledge HE propose to deliver mitigation for fish passage through culvert design. However, mitigation and compensation does not go far enough. The localised impacts of the scheme will be significant. There is no reference as to how HE will provide compensation or mitigation at a local level for the culverting of water courses and surface water



drainage structures and the resulting loss of riparian and river habitat. (The Biodiversity No Net Loss Assessment Reports, Part A and B conclude, in total there will be 62.69% net loss of watercourse through this scheme, (5% for Part A and 57.69% for Part B)). HE should be doing more to support the attainment of Good Ecological Status by 2027 in the waterbodies within the DCO boundary and those connected waterbodies.

As referred to above, it is apparent HE's preferred option for highway watercourse crossings as part of this scheme is the development or betterment of culverts. We understand HE consider it not economically viable to develop bridge structures as part of the scheme, other than the two on the Coquet and Longdike main river crossings. In total, 15 culverts will either be developed or modified to provide betterment as part of this scheme. This equates to around 400m plus of increased culverting of watercourse as well as the re-alignment of a further 2 watercourses. The culverting of any water courses goes against the principles of the WFD, (Objectives 1 and 2) as this will contribute towards a waterbody receiving a Heavily Modified Water Body (HMWB) classification in the future. In turn, this will contribute towards a risk of deterioration under WFD as HMWB are unable to attain Good Ecological Status.

Solution

We have identified a number of opportunities that are available within waterbodies linked to the scheme. For example, the river Lyne waterbody and a number of its tributaries (Floodgate burn, Fenrother burn and Earsdon burn) are impacted by HE current strategic road network and will be further impacted by this Scheme. Rather than delivering a 'scatter gun' approach to mitigation, there is an opportunity to deliver significant, meaning actions in one geographical area to mitigate against the 62.69% net loss of watercourse as well as the associated riparian habitat. The river Lyne would provide the ideal opportunity for this. HE direct links to the river include:

- Floodgate burn (NZ1853191270), new culvert will see a further 13m of channel culverted, in addition to new wing walls and scour protection.
- River Lyne (NZ1855491633) will see a net loss of 53m (this number doesn't include wing walls, scour protection) of river channel as the line of the new A1 deviates from the existing route. The existing culvert will be left intact and a new 53m culvert will be built to take the new road.
- Fenrother burn (NZ1827291993) is one of two watercourses that will be re-aligned as part of the scheme. The proposed line of the new burn is very restricted and passes through two new culverts.
- Earsdon Burn (NZ1892294574), existing line of the A1 is to be retained, no proposal to daylight the existing culverts, the design proposals for the Earsdon Burn and tributaries will see a further 4 culverts totalling an additional 204m of watercourse culverted.



Furthermore, funding from HE could support the delivery of a feasibility study and capital works to ensure that the management and restoration of the river Lyne is successful over the long term. Measures and activities need to be guided by an overarching “Strategy” that sets out an aspirational approach to restoring the natural processes necessary to support the whole river ecosystem of the Lyne.

This ‘process-based’ approach will aim to restore natural geomorphic processes and reinstate the natural form and function of the river environment. It is a sustainable approach which allows the river to adapt to future changes so that the benefits of restoration can be maintained with minimal intervention over the long term.

By restoring a more natural balance of the hydrological and geomorphological processes in the river, other significant environmental and social gains can be achieved. These might include enhanced habitats, improved water quality, better understood erosion and sediment regimes and improved flood management. The viability and sustainability of restoration measures is essential and techniques need to be integrated within the catchment landscape (be that natural, economic or social), so that river and land management are complementary to each other.

The fore mentioned project could also be a HE Designated Fund ‘Legacy’ themed proposal for betterment. Such a proposal could be submitted by the HE Major Project Team to HE Central, requesting support to deliver mitigation and compensation for the net loss realised by this schemes current design.

HE’s corporate strategy includes a Key Performance Indicator to achieve no net loss of biodiversity by 2025. As outlined in the Government’s 25 Year Environment Plan, we would expect HE to explore any feasible opportunities to deliver biodiversity and/or environmental net gain through any of their schemes. This scheme will see the partially re-alignment of 2 watercourses, and the loss of over 400m of watercourse due to culverting (a 62.69% net loss of watercourse), locally, habitat will be lost or degraded. With this in mind, we would expect to see the creation of a minimum of 3 times the compensation lengths of water course to the same condition, if not better than those lost as a result of the scheme. This could be delivered through the for mentioned project proposal for the river Lyne.

With respect to the River Coquet, section 12 of the WFD Assessment does not reflect our most up to date understanding of the scheme. During a meeting on the 7th October 2020 it was suggested that the positioning of the permanent pier on the south bank for the new south bound carriage way Road Bridge over the river Coquet is to be move and therefore will be offset to the existing pier. Section 12.2.3 states, ‘The proposed piers would be on the same alignment as the existing piers on the existing northbound bridge. Section 12.2.4 states, ‘The new structure would be located outside of the normal water levels of the River Coquet. The Section 12 of the WFD assessment needs to be reviewed and updated to reflect the most up to date designs for the scheme.



Surface Water Drainage

Issue and impact

Although the WFD assessment recognises the requirement for mitigation as a result of the surface water drainages impact on water quality, it fails to do this for the proposed surface water drainage structures. As discussed above, culverting a watercourse will contribute towards a HMWB status. This is also the case for the development of surface water outfall structures. With this in mind, we would expect to see an assessment of these structures within the WFD assessment as well as consideration for the subsequent required mitigation.

Solution

It is also worth noting the recent AECOME North East Highways Fish Pass Feasibility Investigations Report, commissioned by HE. The report investigates issues of fish passage at 12 high priority locations on HE's Strategic Road Network. Two of these sites are relevant to this scheme, the river Lyne culvert and the Cawledge Burn culvert.

Consideration also needs to be given to the scheme's potential impact on any future opportunities for weir removal within the River Coquet catchment. We would expect to see reassurance that the bridge crossing over the Coquet will not inhibit weir removal both up and down stream of the structure.

Drainage Network Water Quality Assessment (DNWQA)

Issues and impacts

The DNWQA uses method A and D from HE Water Risk Assessment Tool (HAWRAT) to assess the impact of the proposed mitigation measures as part of the surface water management strategy. This document concludes there would be no significant effects on the receiving surface water features as a result of the scheme with the implementation of the proposed mitigation measures.

We welcome the inclusion of natural solutions for the identified drainage impacts that have been incorporated. Solutions such as Sustainable Drainage Systems (SUDS) and swales need to be as natural as possible in their design and development to encourage biodiversity.

Solution

Within section 2.2.2. Surface Water Feature Importance, it is understood that the importance of a surface water body or feature will be dependent on its sensitivity. However, it is considered that a waterbody that is classified as poor under WFD such as the River Lyne would benefit from additional protection and mitigating from potential pollution risks such as surface water runoff from a highway. We would welcome consideration of this within this document and the WFD assessment.



As the drainage strategy will still involve the introduction of new surface water outfalls as part of the Scheme - please refer to previous comments for the WFD assessment.

We would also welcome the inclusion of design features to stop and/or reduce pollution as a result of an incident on the highway, such as the ability to close off outlets from SUDS on the watercourse crossings such as the River Coquet, Longdike Burn and River Lyne at the very least.

Flood Risk Assessment (FRA)

Issue and impact

The FRA covers all of the points expected and discussed at previous meetings. However, the section of the FRA for the River Coquet element of the works does not match our most up to date understanding of the scheme. At the meeting on the 14th April and subsequent meetings on the 7th October, it was discussed that the permanent piers will need to be moved and be offset to the existing. The FRA still discusses the piers being aligned with the existing. This section of the FRA should be updated to reflect the latest designs.

Solution

Following these meetings we have a good understanding of the proposed pier locations and are satisfied with the manning's calculation approach for providing evidence. However, the FRA needs to be updated/addendum supplied to reflect these changes and provide the necessary evidence to support the claims of no increase in flood risk and that detailed modelling is not required.

For the culvert extensions and replacements, we welcome that these are like-for-like or provide betterment in some cases. Although, the FRA does discuss that the increases in flood risk do not affect any receptors, it can still increase the flood risk to land. We would insist that local land owners are contacted with regards to increase in flood risk, if outside of the DCO boundary.

Note: any works on the main river or within 8m of a main river will may require an environmental permit from the Environment Agency. Once detailed designs and, more importantly, the method of works are known contact should be made with the Environment Agency's flood risk permitting team and an application made.

Groundwater

Issue and impact

We are pleased to see that the proposed highway drainage scheme design ensures separation of rainfall and surface run off from groundwater, discharging it to the nearest watercourses. The lining of the drainage scheme in particular the SUDS attenuation basins is an acceptable mitigation measure. Unfortunately, we have not been able to find the details of this lining and how it will be maintained over the lifetime of the scheme.



Solution

Details of this lining and how it will be maintained over the lifetime of the scheme should be provided as part of the DCO.

A scheme where there is no infiltration component will protect both the quality of the groundwater from pollution arising from the highway and the enhance flood risk from groundwater and potential reduced capacity in the storage and attenuation basins. On the basis that this proposal remains unchanged, we have no groundwater concerns with the proposed development, subject to a long term management plan being submitted.

However, the proposed drainage scheme will affect the local hydrological conditions adjacent to the road and potentially the water quality of the receiving watercourses. The impact assessment on water quality only looks at copper and zinc to surface waters. There remains a residual risk to pollute surface waters from other pollutants e.g. hydrocarbons. The risk of a direct discharge of priority hazardous substances to groundwater remains low if surface drainage is kept separated from the groundwater regime as per the current design and the superficial confining layer is not breached.

This view is based on our understanding that the groundwater is shallow, close to ground level but generally confined by low permeable superficial deposits such as boulder clay. Providing the confining layer is not breached during either the construction phase or the proposed drainage scheme the risk of change is low. However in areas where the groundwater is unconfined and or perched groundwater exists there is a high risk that the construction phase and drainage scheme could impact the hydrology, reducing water inputs and levels. Thus potentially adversely impacting any protected groundwater dependent habitat adjacent to the scheme. Where this is considered unacceptable further information would be required, such as

1. Assessment as to whether groundwater conditions are confined or unconfined could be made using available licensed datasets from the British Geological Survey assessing drift thickness and type and /or
2. Further site investigation and/ or
3. Groundwater monitoring could be required.

If the proposed drainage scheme is modified to mitigate any risks and impacts to the environment, ecology and water quality, the Environment Agency must be consulted on this.

Historic Landfill Sites

Issue and Impact

There is a small historical landfill site (around 2,000m³ area) at grid reference 418996, 569003 around 400m south of Helm and 70m east of the A1



carriageway. This was operational prior to the introduction of Waste disposal licencing in 1976 and used for the disposal of 'farm wastes' by Thirston Parish Council. This historical landfill is not identified on the ES figure 11.7 'Potential Contamination and Shallow Mine related Features –Part A.' document.

Solution

ES figure 11.7 'Potential Contamination and Shallow Mine related Features –Part A.' document to be updated.

Please do not hesitate to contact me if you have any questions regarding this letter.

Yours sincerely

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