

2. Review of environmental topic assessment outcomes

2.1. Review of water assessment

During construction, there would be increased risks to water quality within the construction footprint for the Proposed Scheme in the absence of mitigation. This is because of changes in the construction works timing to include August which is a warmer month of the year which could result in a greater risk of declines in dissolved oxygen due to suspension of sediments and associated nutrients. Natural England's *SSSI Condition Change Briefing Note, Somerset Levels and Moors, May 2021*³ notes that all of the SSSI units are now 'unfavourable declining' due to elevated phosphate, emphasising the sensitivity of the water courses to nutrification (e.g. from disturbance of nutrient-rich sediments) and undesirable growth of duckweed and algae. Impacts on water quality would likely be confined specifically to the working area of the KSD and Sowy and would include:

- The use of more natural riparian planting and less engineered erosion protection has a higher potential to increase suspended sediment concentrations and release materials into the water column during and after construction of the backwaters and two stage channel features;
- Increased sedimentation following on from the above;
- Increased risk of poorer water quality linked to the above, particularly in terms of nutrients (phosphate) and the effect on duckweed and algal growth and dissolved oxygen at the higher water temperatures and light levels that would be expected in the summer months.

The WFD enhancements would involve replanting with oxygen-rich plants that would help filter and oxygenate the water. Grazing of the stretch of works will be discontinued until at least 2023, which would give the watercourse time to recover.

Whilst the risks to water quality described above would be increased relative to those described in the ES¹, the magnitude of effect is still assessed as medium in the absence of mitigation as the nature of the impact would still be temporary, and the significance of effect would still be moderate adverse (significant). With mitigation in place as outlined in Table 2.1 the magnitude of change and significance of effect would remain as minor adverse (not significant).

³ Natural England. 2021. SSSI Condition Change Briefing Note. Somerset Levels and Moors.

Table 2.1 Summary of residual effects associated with proposed design and construction methodology changes

Receptor (sensitivity)	Nature of impact (magnitude)	Significance (pre-mitigation)	Mitigation	Residual effect
Construction				
KSD and Sowy (medium)	Increase in suspended sediments within water column; risk of reduced oxygen levels (medium, temporary)	Moderate adverse	Preparation and implementation of a Surface Water Management Plan (SWMP) Compliance with best practice pollution prevention measures Use of silt curtains/booms and water quality (including dissolved oxygen) monitoring in summer months, plus contingency for changing the work rate and/or methodology if needed. Toolbox talks regarding water quality risks.	Minor adverse (not significant)

2.2. Review of flora and fauna assessment

During construction, there is the potential for additional impacts because of changes in works timing. These impacts are likely to include:

- Increased risk of poorer water quality associated with in-channel working during August, when higher water temperature and sunlight levels could lead to reduced dissolved oxygen; and
- Risk of disturbance to breeding birds due to construction works in August.

Birds within Statutory and Non-statutory designated sites (SSSIs and LWSs)

King's Sedgemoor Drain SSSI, Moorlinch SSSI, and West Sedgemoor SSSI, Wet Moor SSSI and West Moor SSSI are all designated for breeding bird features. These features could be impacted through the disturbance of birds within these SSSIs and functionally linked habitat.

The presence of construction plant, vehicles and operatives could result in disturbance and displacement of breeding birds. However, construction works are

proposed to take place between August, which is at the end of the main breeding bird season (which is considered to be March to August, inclusive), and October/November, thus avoiding the most sensitive times for breeding birds and meaning the risk of there being a significant effect is still low.

The magnitude of effects on breeding and non-breeding qualifying bird features of SSSIs (medium / national sensitivity) is considered to be negligible adverse and the significance of effect, minor adverse. With mitigation in place (see Table 2.2), there is no change to the significance of effect on breeding bird features associated with the potential risk of disturbance as described in Chapter 7 of the ES¹ given that construction would commence towards the end of the breeding bird season.

Birds outside of Statutory and Non-statutory designated sites

Beyond the statutory designated sites outlined in the previous paragraph, the habitats within the study area are likely to provide functional habitat for qualifying species and assemblages of birds and to offer foraging habitat for birds which are listed under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), such as barn owl (*Tyto alba*), as well as a range of common species.

Scattered, localised trees and scrub, along with lengths of hedgerow, provide nesting opportunities for common bird species. Lowland wet grassland will also provide suitable habitat for ground nesting birds such as snipe (*Gallinago gallinago*), lapwing (*Vanellus vanellus*) and skylark (*Alauda arvensis*).

The presence of construction plant, vehicles and operatives during August could result in disturbance and displacement of birds. However, this is at the end of the main breeding bird season, and October/November, thus avoiding the most sensitive times for breeding birds. In addition, mitigation has been identified to minimise the risk of disturbance as far as practicable (see Table 2.2).

The magnitude of impacts on birds (low / county sensitivity) is considered to be negligible adverse and the significance of effect, minor adverse. There is no change to the significance of effect on breeding bird features as described in Chapter 7 of the ES¹ associated with the potential risk of disturbance due to works starting towards the end of the breeding bird season.

Otter

Otter (*Lutra lutra*) activity was recorded along the Proposed Scheme and although no holts and/or resting places have been recorded, suitable habitat exists.

Changes in water quality, if they occur as a result of the new proposal for in-channel works in August, could impact otters directly or indirectly through impacts on its prey species. The sensitivity of any impact on otter (negligible / local sensitivity) is considered likely to be negligible adverse in terms of the local population based on the limited nature of the works, the temporary nature of construction impacts and the large home ranges of animals. The significance of effect is assessed as negligible in the absence of mitigation. Therefore, there is no change in the significance of effect on otter associated with impacts on water quality from that described in Chapter 7 of the ES¹.

2.2.1. Water vole

A low water vole (*Arvicola amphibius*) population size was estimated within the majority of the Proposed Scheme. Changes in water quality during in-water

construction in August could directly impact upon the conservation status of the location water vole population.

In the absence of mitigation, the magnitude of impact on water vole (low / county sensitivity) was considered in Chapter 7 of the original ES Chapter to be high adverse in terms of the local population and the significance of effect, moderate. This was based on the death of animals from channel widening which could lead to local extinctions, and temporary, short-term effects in respect of the loss of burrows, as bank habitat would be available again following construction and establishment of vegetation, as well as potential water quality impacts. With mitigation in place (see Table 2.2) the significance of effect on water vole associated with changes in water quality during construction in August would be less significant than that already described in Chapter 7 of the ES¹.

Table 2.2 provides a summary of potential effects, identified mitigation and residual effects.

Table 2.2 Summary of residual effects associated with proposed construction methodology changes

Receptor (sensitivity)	Nature of impact (magnitude)	Significance (pre-mitigation)	Mitigation	Residual effect
Statutory designated sites	Disturbance of qualifying breeding bird features	Negligible Construction activities planned August to November to avoid most sensitive times for breeding birds.	Where works cannot be conducted outside of the main breeding bird period (i.e. August), an Ecological Clerk of Works should check potential nesting habitat prior to construction works. Where nesting is occurring, appropriate restrictions should be put in place to avoid the nest from being damaged or abandoned. This is to include the use of appropriate avoidance buffers based on disturbance distance for Schedule 1 species.	Negligible
Non-statutory designated sites (LWSs)	Disturbance of qualifying breeding bird features	Negligible Construction activities planned August to November to avoid most sensitive times for breeding birds.		Negligible
Birds (outside of designated sites but including some functionally linked, supporting habitat)	Loss or damage to active nests	Minor adverse But potential for breach of the legislation		Minor adverse (not significant)
Birds (outside of designated sites but including some functionally linked, supporting habitat)	Disturbance of breeding birds	Negligible Construction activities planned August to November to avoid most sensitive times for		Negligible (not significant)

Receptor (sensitivity)	Nature of impact (magnitude)	Significance (pre-mitigation)	Mitigation	Residual effect
		wintering and breeding birds.		
Otter	Changes in water quality as a result of in-channel works in August	Negligible	See Table 2.1 for water quality mitigation measures.	Negligible (not significant)
Water vole	Changes in water quality as a result of in-channel works in August	Moderate adverse	See Table 2.1 for water quality mitigation measures.	Minor adverse (not significant)

2.3. Review of cumulative effects assessment

The following information sources were reviewed in accordance with the methodology set out in Section 12.2 of the ES¹, and no additional schemes or developments were identified within the study area for cumulative effects:

- Sedgemoor District Council planning portal;
- South Somerset District Council planning portal;
- Somerset County Council planning portal;
- Somerset Rivers Authority website (www.somersetiversauthority.org.uk);
- Somerset Drainage Board Consortium website (<https://somersetdrainageboards.gov.uk/>); and
- Our internal national environmental assessment specialist team.

The 12 schemes with spatial and temporal overlap and/or hydrologically connected with the Proposed Scheme identified in Table 12.2 of the ES¹ have been reviewed with respect to potential cumulative impacts with the Proposed Scheme, and no additional or changed potential cumulative effects have been identified over and above those described in Chapter 12 of the ES¹.

Following review of the information sources described above, one additional scheme has been scoped into assessment:

- 21/00311/OUT (South Somerset District Council) - Outline planning application for up to 100 dwellings, associated open space and infrastructure with all matters reserved except access.

As the application is for outline planning permission and has not yet been determined, no overlap in construction period with the Proposed Scheme is considered likely. No cumulative effects during operation are considered likely due to the nature of the scheme and the distance involved (>2km).

In summary, no new or additional cumulative effects are considered likely over and above those discussed in Chapter 12 of the ES¹.