

Via email only:
nwlplanning@norfolk.gov.uk

Our ref: AE/2024/129579/01-L01

Your ref: FUL/2024/0022

Date: 15 August 2024

Dear Sir/Madam

STRUCTURES INCLUDING A NEW VIADUCT CARRYING THE NORWICH WESTERN LINK OVER THE RIVER WENSUM, ASSOCIATED DEVELOPMENT AND OTHER ANCILLARY WORKS

HONINGHAM: LAND BETWEEN THE A1270 BROADLAND NORTHWAY NEAR RINGLAND AND THE A47 NEAR HONNINGHAM: DEVELOPMENT OF APPROXIMATELY 6KM OF THE NORWICH WESTERN LINK ROAD CONNECTING THE A1067 (FAKENHAM ROAD) WITH THE NEW A47 NORTH TUDDENHAM TO EASTON SCHEME (BEING DEVELOPED BY NATIONAL HIGHWAYS), INCLUDING THE CONSTRUCTION OF A NEW ROUNDABOUT JUNCTION WITH THE A1067 FAKENHAM ROAD, IMPROVEMENTS TO THE A1067 FAKENHAM ROAD AND THE ROUNDABOUT JUNCTION WITH THE A1270 BROADLAND NORTHWAY.

Thank you for consulting us on this application. We have reviewed the documents submitted and currently **object** as additional information is required to appropriately assess the potential impacts of the scheme, specifically in relation to flood risk and waste management. We also request clarity from the applicant on the expected impacts on the River Wensum during construction, confirmation of the measures proposed to prevent water pollution during operation, clarification in respect of the Biodiversity Net Gain assessment, and we have raised a number of questions in respect of the River Wensum Crossing - Groundwater Modelling Report.

Should the scheme be approved, we request to be consulted on the detailed Construction Environmental Management Plan(s) and Landscape Environmental Management Plan. Further detail on our objections, including how they can be overcome, and additional advice is provided below.

Flood Risk

Our maps show that the boundary of the site lies partially within fluvial Flood Zone 3b (the functional floodplain), Flood Zone 3a (areas with a high probability of flooding), and Flood Zone 2 (areas with a medium probability of flooding – as defined by the

East Anglia area (East) - Iceni House

Cobham Road, Ipswich, Suffolk, IP3 9JD

General Enquiries: 08708 506506 Fax: 01473 724205

Weekday Daytime calls cost 8p plus up to 6p per minute from BT Weekend Unlimited.

Mobile and other providers' charges may vary

Email: enquiries@environment-agency.gov.uk

Website: www.environment-agency.gov.uk

Planning Practice Guidance (PPG) on Flood Risk and Coastal Change). The proposal is for structures including a new viaduct carrying the Norwich Western Link Road over the River Wensum, and other associated and ancillary works. Annex 3 of the National Planning Policy Framework (NPPF) defines the flood vulnerability classification of “Essential transport infrastructure” as ‘essential infrastructure’. The LPA should confirm the flood vulnerability of the proposed scheme. Applications for ‘essential infrastructure’ at this location, in accordance with Table 2 of the PPG, are required to pass the Sequential and Exception Tests and be supported by a site-specific Flood Risk Assessment (FRA).

We have reviewed the submitted Flood Risk Assessment (FRA), document reference 3.12.02 – Environmental Statement (ES) Chapter 12 Appendix 12.2 Version 00 and dated March 2024, and the submitted Hydraulic Modelling reports (FRA Sub Appendix B: River Wensum Hydraulic Modelling Report, document 3.12.02B, Version 00 March 2024 and FRA Sub Appendix E: Foxburrow Stream Hydraulic Modelling Report, document 3.12.02e, Version 00 March 2024). We consider that they do not comply with the requirements set out in the PPG and as such do not provide a suitable basis for assessment to be made of the flood risks arising from the proposed development. **Therefore, we are raising an objection on flood risk grounds.**

We are aware that the applicant has undertaken their own hydraulic modelling to challenge the existing flood risk to the site. The applicant has not currently submitted the flood modelling. We need to review this model and its outputs before the flood risk assessment can be assessed in detail.

To overcome our flood risk objection, the applicant must submit their models for review by the Environment Agency. Submission of the models will not in itself result in the removal of our flood risk objection. We must be satisfied that the models submitted are representative of the flood risk to the area. Once we have reviewed the models, we will be able to provide further comment on the Flood Risk Assessment and associated appendices.

Waste management

We have reviewed the submitted Design Site Waste Management Plan (SWMP), document reference 3.03.01b - ES Chapter 2 Appendix 3.1 - Outline Construction Environmental Management Plan (OCEMP) Sub Appendix 3.1B Version 00 and dated March 2024. The document is stated as providing a framework for resource efficiency and modelled waste forecasting data for the proposed scheme.

We do not consider that the design SWMP currently provides a suitable basis for securing resource efficiency and waste management. As currently written, the design set out in document 3.03.01b may lead to a failure to comply with the Environmental Protection Act 1990, Section 34 as the waste produced by the project may be misclassified. **Therefore, we are raising an objection on waste management grounds.**

To meet the objectives detailed in section 1.4 of the design SWMP, waste must be described, classified and coded correctly. Without this best waste management practice will not be adopted or delivered.

To overcome this objection, the design SWMP must ensure that waste will be classified and coded correctly. It should identify waste streams that will require a

waste classification report. A waste classification report may include a sampling plan, laboratory analysis and a hazardous waste assessment interpretation. The extent of a waste assessment report will depend on the nature of the waste. This is explained in the Technical Guidance WM3 available here: [Waste classification technical guidance - GOV.UK \(www.gov.uk\)](http://www.gov.uk).

Regarding paragraph 8.2.1 of the design SWMP, waste must be classified as non-hazardous or hazardous. Guidance can be found in Technical Guidance WM3 on how to do this. This will then allow or support:

- an accurate waste description,
- waste to be moved on the correct duty of care paperwork,
- the waste hierarchy to be applied, and
- alternative destination routes, other than landfill, to be considered.

And prevent:

- a breach of an environmental permit or waste exemption, and
- unauthorised or harmful deposit, treatment or disposal of waste.

Landfill Waste Acceptance Criteria (WAC) analysis (specifically leaching test results) must not be used for waste classification and hazardous waste assessment purposes. This analysis is only applicable for landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

If landfill is identified as the only disposal route for waste, then further analysis may be required to ensure that the material meets the WAC for an inert, non-hazardous or hazardous landfill.

Section 8.3 of the design SWMP (Duty of Care) requires waste to be described, classified and coded correctly. Technical Guidance WM3 supports this process. Once this assessment has been done the waste can be moved using waste transfer notes or consignment notes in the cases where waste is classified or coded as hazardous waste.

For paragraph 8.4.2, due to its use for landfills and to avoid confusion we recommend removing the word 'inert' when used with plastic.

Paragraph 8.5.1 - We recommend the term 'inert' is removed in this section as waste is classified as non-hazardous and hazardous. The term is only relevant if landfill is identified as the disposal route for waste, then further analysis may be required to ensure that the material meets the waste acceptance criteria for an inert, non-hazardous or hazardous landfill.

Table 9-1 - Design waste forecasts

Many of the waste codes listed are mirror hazardous or mirror non-hazardous. Technical guidance WM3 provides advice on the assessment to correctly identify which of the mirror codes apply, non-hazardous or hazardous. This will provide the information needed to complete the duty of care paperwork and prevent an unauthorised deposit, treatment or disposal of waste.

In respect of section 9.2 Conclusions, we note that reference is made to the landfill target, but there is no mention of meeting the remaining objectives detailed in section 1.4 of the design SWMP.

The conclusions should also consider that as recovery of waste is subject to market forces, availability of storage and treatment capacities whether this could impact the target.

Regarding the Outline Construction Environment Management Plan (OCEMP), document reference 3.03.01 - ES Chapter 3 Appendix 3.1, Version 00 and dated March 2024, we note that paragraph 4.7.4 refers to contaminated material and applying the relevant technical guidance. The technical guidance to be complied with should include WM3: Waste Classification - Guidance on the classification and assessment of waste, and any later updates to this guidance produced by the Environment Agency.

For paragraph 4.10.4, the correct description of waste is necessary to comply with Duty of Care, not just the transportation. The key waste streams listed in 4.10.3 have the potential to be hazardous and the potential to be mirror coded waste as described in the List of Waste. For mirror coded waste, an appropriate waste assessment must be carried out on any discarded material to be described and coded before appropriate decisions can be made as to the transport, treatment and destination of the waste.

Paragraph 4.10.10, the Site Waste Management Plan will be required for both non-hazardous and hazardous wastes. We recommend the applicant considers if recovery should also be included in this statement.

In respect of ES Chapter 14 - Materials and Waste and Appendix 14.1 - In-combination Assessment (document references 3.14.00 and 3.14.01), we recommend that some clarity should be given around the classification of inert, non-hazardous and hazardous waste at the start of these documents. The definitions provided refer to the classification used in the Landfill Directive only and not all waste legislation.

Surface water quality and pollution control

The ES Chapter 12 – Road Drainage and the Water Environment (document reference 3.12.00, Version 00 dated March 2024) concludes in table 12-8 that there will be a “short term Moderate residual effect (significant)” on the River Wensum during construction, even after the implementation of the additional proposed mitigation measures, which is stated as being due to the very high sensitivity of the River Wensum, and difficulties in preventing all sedimentation or pollution risk. It is stated that these “temporary” effects will last for “approximately 5 years”, with water quality monitoring undertaken during and following the construction period.

We are broadly satisfied at this stage with the measures proposed in the OCEMP. As detailed below, we request to be consulted on the subsequent detailed CEMP(s), to ensure that the detailed design of the proposed construction phase mitigation is appropriate and acceptable. It is therefore unclear what the remaining predicted effects on the River Wensum will be once mitigation measures have been applied.

The statement in Table 12-8 of the ES Chapter 12 does not appear to be consistent with the conclusions in Table 8-1 of the Habitats Regulations Assessment (HRA), document reference 4.03.00 Version 00 dated March 2024. This assesses the adverse effects on site integrity for the River Wensum SAC during the construction

phase alone or in combination with other plans or projects. In relation to likely significant effects (LSE) during construction arising from sediment and chemical run-off it is stated that: "Mitigation measures that would avoid sediment and chemical run-off into the River Wensum would be mandated by their inclusion in the Proposed Scheme's OCEMP... These measures would reduce the risk of sediment and chemical run-off to negligible levels".

The applicant should confirm whether there are expected to be significant effects on the Wensum following the outlined construction mitigation measures, and detail what those impacts would be and how they would arise. Significant impacts on the Wensum lasting up to 5 years following construction would not be acceptable.

We have previously highlighted that the risk to the water environment from Road Traffic Collisions (RTC) must be considered. We note that mitigation measures for such collisions are now included (Drainage Network Water Quality Assessment table 2.1, document reference 3.12.01 - ES Chapter 12 Appendix 12.1). Measures include the lining of the grass swales and the lining of each sedimentary forebay/catchpit with a penstock after this area to contain any spillages before they can soak into the land through the infiltration ponds or reach watercourses (paragraph 5.5.1). We would request that details of how to operate the penstocks are provided to the Environment Agency and Norfolk Fire and Rescue who may be first on the scene of an RTC and would look to operate the penstock to contain any polluting spillage. We note that in document 4.04.00 (Drainage Strategy Report) paragraph 11.1 it is stated that the pollution control devices will be clearly signed and that this manual will be distributed to the highway maintenance teams as well as the fire service.

We understand that penstocks are proposed at each outlet from the sediment forebay upstream of the infiltration basin, but this detail is missing on 2.08.00 Drainage Layout sheet 1 and 2.08.01 Basin Layout sheets 1 and 2. **The applicant should confirm that such penstocks will be included** and amend those diagrams accordingly.

We appreciate that Major Accidents and Disasters, document reference 3.18.01, ES Chapter 18 states that transport accidents are not within scope as there have been no recorded accidents in 3 years in the existing nearby tie-in roads. However, it also states that significant transport accidents occur across the UK on a daily basis, mainly on roads, and involving private and/or commercial vehicles.

The new proposed road will carry far more commercial and industrial vehicles and will not have the same vehicle composition and risk as the nearby tie-in roads therefore the risk of serious potentially polluting traffic collisions during the lifetime of the new road must be considered.

Therefore, the outfalls from each of the forebays should be situated at a depth to ensure that the forebay is not routinely full of road drainage water or silt, and there will always be retention space within the bay. There should be additional capacity to hold a spillage of a worst-case scenario, namely 2 x 22m³ tankers during rainfall above the normal water level when the penstock is operated. This will ensure that any polluting spillage can be safely contained and prevented from entering either the watercourse or infiltration basin. **The applicant should provide, and the Environment Agency should have the opportunity to review, further information to demonstrate that this is the case.**

We are pleased to note that there is no proposed direct drainage into the River Wensum. During operation, there will be 2 discharges to watercourses after treatment, one into the Foxburrow Stream and the other into the A47 existing drainage system that leads to the River Tud.

We note that the Construction Surface Water Management Measures Summary (document reference 4.04.15, Drainage Strategy Appendix 15) states at paragraph 5.2.4 that “No foul drainage or contaminated surface water run-off will be discharged into any borehole, well, spring, soakaway, or watercourse... without prior filtering and treatment”. Such filtering and treatment must be adequate to clean the water to a standard acceptable to the Environment Agency and must not damage the environment.

The retention time in the settlement ponds (for construction) must be sufficient to allow for effective settlement. Therefore, the ponds must be of adequate size to hold predicted rainfall events over the area of land that has the potential to runoff. Inappropriately small ponds and settlement pits which are overwhelmed by runoff from heavy rainfall present a pollution risk.

The Outline Construction Environment Management Plan (OCEMP), document reference 3.03.01 ES Chapter 3 Appendix 3.1, states in paragraph 3.9.7 that the formal procedure for handling **environmental incidents** will be developed and agreed by the Client and the Environment Manager. The flow chart states that regulatory authorities should be notified. This procedure must include immediate reporting of any environmental incident to the Environment Agency incident hotline on 0800 807060. Any spill that potentially could impact the groundwater or surface water should be reported to the Environment Agency immediately.

We were pleased to see within the OCEMP the inclusion of such pollution prevention measures as vehicle cleaning, wheel washing, dust sweepers, spill kits and consideration given to appropriate location of potentially polluting substances during construction.

Paragraph 4.7.1 states that oil interceptors will be used, if possible, for refuelling areas during construction. These interceptors must be regularly checked and emptied appropriately, ideally with an effective oil alarm to indicate any spillages.

Any toilet and welfare facilities used during construction should comply with the General Binding Rules for sewage disposal. Alternatively effluent should be contained and disposed of by an appropriate registered waste disposal company.

We understand that the detail on all **specific mitigation measures to be applied during the construction phase**, including those associated with construction surface water management, will be provided in one or more Construction Environmental Management Plans (CEMP). Any CEMP will be secured via planning condition and should be approved prior to the commencement of construction. **The Environment Agency should be consulted on any CEMP** for matters within our remit.

We note from paragraph 4.11.1 of the OCEMP that a Risk Assessment Method Statement (RAMS) for the pipe proposed to transport bentonite piling support fluid across the River Wensum will form part of the Flood Risk Activity Permit application. We would suggest that this also forms part of the detailed CEMP to ensure the widest awareness of the agreed mitigation.

We note that Construction Surface Water Management Measures Summary (document reference 4.04.15, Drainage Strategy Appendix 15) states at paragraph 2.0.4 that the construction methodology for the installation of temporary and permanent crossings will be agreed with the EA, IDB and LLFA during the consenting process or discharge of conditions, which we support. We also note that paragraph 2.0.5 states that “Given the complexity of the Proposed Scheme, the consents strategy is likely to be streamlined”. We would encourage the applicant to engage with us on any required permits or licences as earlier as possible to minimise the risk of delays. It would not be possible to ‘streamline’ the application for specific permits or licences.

Water Resources

The proposed development is located in an area of serious water stress, as identified in the Environment Agency report available here: [Water stressed areas – 2021 classification - GOV.UK \(www.gov.uk\)](http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/444444/Water_stressed_areas_-_2021_classification_-_GOV.UK.pdf)

The source of any water required as part of the construction needs to be considered. Most water related construction activities, including dewatering and dust suppression, are licensable activities and as such, early consideration should be given to water availability. Information on this can be found in the relevant abstraction licensing strategy: [Broadland abstraction licensing strategy - GOV.UK \(www.gov.uk\)](http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/444444/Broadland_abstraction_licensing_strategy_-_GOV.UK.pdf)

The Outline Construction Environment Management Plan (OCEMP), document reference 3.03.01 - ES Chapter 3 Appendix 3.1 mentions the requirement for dewatering at various phases of construction. The applicant will need to consider what type of licence/permits will be required to facilitate dewatering activities. The applicant should also consider the requirement of any licences/permits for associated activities such as transfers, impoundment and discharges. Information on whether a licence is required and the type of licence can be found here: <https://www.gov.uk/guidance/check-if-you-need-a-licence-to-abstract-water>.

Reference is made within the OCEMP to the development of a Dewatering Management Plan to be agreed upon with the Environment Agency (paragraph 4.11.1 and elsewhere). We expect that this would form part of a detailed CEMP. We would encourage this to be progressed as soon as possible to ensure that suitable licences and permits are in place before the construction phase begins. The applicant is aware the location is near sensitive sites (River Wensum SSSI and SAC) which may mean extra care or evidence is needed relating to these impacts when applying for a water resources licence.

Furthermore, and in order to be licenced, the applicant will need to demonstrate that dewatering is non-consumptive to the local environment. An enhanced pre-application enquiry should be submitted to allow adequate time for determination by the Environment Agency.

We note that in paragraph 2.1.1 of the Water Framework Directive (WFD) Assessment, document reference 3.12.03 ES Chapter 12 Appendix 12.3) the 2015 version of the Anglian River Basin Management Plan (RBMP) has been used as a reference for the desk study. The RBMP was updated in 2022, and it would therefore

be prudent to assess if there have been any significant changes that might affect the overall assessment.

The WFD Assessment states that no deterioration is anticipated as a result of the Proposed Scheme (paragraph 6.1.3) and the scheme would not prevent achievement of good water body status/potential (paragraph 6.1.11). The applicant notes the inclusion of the embedded construction methodology and the OCEMP will assist in achieving these outcomes. Dewatering activities required for the proposed scheme are expected to be temporary in nature with no anticipated long-term effects on WFD status (paragraph 5.3.13). The applicant should note that ensuring dewatering is non-consumptive will also support achieving WFD outcomes. The applicant should also be aware that the River Wensum is subject to the revised Common Standards Monitoring Guidance (rCSMG).

Any activities on-site could have an impact upon local wells, water supplies and/or nearby watercourses and environmental interests. Instillation of culverts that require dewatering and diverting of existing watercourses will require the relevant licences/permits. The applicant notes this requirement, as well as appropriate consultation with IDBs and Natural England (Table 12.27 - ES Chapter 12: Road and Drainage and the Water Environment, document reference 3.12.00).

Development of the Norwich Western Link must not detrimentally affect local water features (including streams, ponds, lakes, ditches, or drains) and this includes both licensed and unlicensed abstractions. Any disruption to surrounding abstraction licences during and after construction and operation of the NWL must be avoided or mitigated. The Environmental Statement Chapter 12 - Road Drainage and Water Environment (document reference 3.12.00) states abstraction licence data provided from previous consultation with the Environment Agency. This notes the presence of six licenced surface water abstractions located in the study area, both on the River Wensum and River Tud (paragraph 12.4.16) and six groundwater abstractions within 1km of the Site Boundary (paragraph 12.4.31). Additionally, there are four public water supplies within a 3km radius of the site (paragraph 12.4.32). Further to this there are approximately forty abstraction points and six reaches within a 5km radius of the proposed site the applicant should be aware of. These must not be affected by the construction and operation of the NWL. Any impacts on water quality, drainage, or hydrological flow caused during construction and operation may impact local and downstream licence holders and their ability to abstract and must be avoided. The impacts of the construction and operation of the NWL on these abstractions should be investigated, and if there are likely to be impacts, derogation agreements will need to be sought to support any abstraction licence applications.

We note that **the figure associated with private abstraction AL4 in table 12-5 is not currently correct**. This appears to be the same abstraction referenced as ABT4 in Table 2-3 of the River Wensum Crossing – Groundwater Modelling Report (document reference 3.12.05 ES Chapter 12 Appendix 12.5). This abstraction is currently licensed for 204,500m³ per year (rather than 199,389m³) and 3273m³ per day. The daily limit has increased and is much higher than the previous figure which is shown in the table (546m³).

This figure is used to calculate the chloride impact in paragraph 8.5.1 of 3.12.05. Therefore, **this model will need re-running** to ensure that there is no impact on the water quality of this agricultural abstraction licence for spray irrigation.

Certain private and small water supplies do not require a licence to abstract water; therefore, the Environment Agency does not necessarily hold extensive records of these. The locations of private domestic sources may be held by the local authority on the register required by Regulation 14 Private Water Supplies Regulations 2016.

Biodiversity

We have reviewed the Biodiversity Net Gain (BNG) Technical Report (document reference 3.10.33 ES Chapter 10 Appendix 33) and have the following comments.

Paragraph 1.1.14 - we note that a scheme-wide BNG outcome will not be possible due to the presence of irreplaceable habitats (veteran trees) in accordance with industry good practice guidance. BNG is limited to all non-excluded habitats (including v high distinctiveness or within stat designated sites).

Paragraph 3.7.1 (Pt 7) refers to the temporary works platform footprint. This will include the installation of 108m of temporary culverts (Ordinary watercourse 5 (OWC5)) within the floodplain as referred to in the Flood Risk Assessment (document reference 3.12.02). **Can the applicant clarify the approach** being taken to the recording of the temporary works within the BNG metric with respect to the culverts installed on the floodplain as part of the temporary works platform (OWC5)? There appears to be a discrepancy between the length of culverts proposed in the BNG Technical Report, and the length of culverts shown in the FRA.

Paragraph 3.9.5 – we support the precautionary approach in classifying purple moor and rush pasture Habitat of Principal Importance (HPI) as a very high distinctiveness habitat (VHDH) for the purposes of the metric.

Paragraph 3.9.7 - we note the approach being taken to the temporary construction compound areas within the landscape plans, which are assumed to be lost and returned to the same baseline post development in line with the Statutory Metric Guidance (p.30) for area and hedgerow habitats. **Please can the applicant confirm** that this approach will also be taken regarding the 108m of temporary culvert crossings on the floodplain installed as part of the temporary works platform mentioned in the FRA (see comments on paragraph 3.7.1 above). In the BNG guidance temporary culverts in use for approximately 4 years are assumed to be lost and returned to the same baseline habitat condition post development, as recorded in the creation tab.

Paragraph 3.9.10 - we note that the February 2024 Statutory metric guidance will be used to produce the Biodiversity Gain plan and discharge the Biodiversity Gain Plan condition.

Paragraph 5.2.6 refers to the loss of 1.22ha of purple moor grass to tree planting to tie in with a bat underpass. The mitigation hierarchy should be followed, first avoiding where possible any impact on very high distinctiveness habitat (VHDH) or Habitat of Principal Importance (HPI). **The applicant should be able to demonstrate** that there are no other suitable locations for the bat underpass and associated tree planting scheme and that the loss of this area of HPI/ VHDH is unavoidable.

Ordinary watercourse 5 (OWC5) is proposed to be culverted during construction of as described in the FRA and shown in Figure 6 of the FRA sub appendix K (document reference 3.12.02k). We would highlight that in the final design the length

of the culvert should be as short as possible. The culvert invert should be buried below the natural bed level to allow material to enter/pass through the culvert. The applicant should consider and seek to ensure the provision of dry mammal passage either through or around the culvert which will remain accessible during floods. We would also welcome attempts to daylight such lengths of culvert.

Paragraph 4.3.43 of the OCEMP (document reference 3.03.01) states that '*An update water vole population assessment to be undertaken at least 12 months prior to piling activities (this would ideally comprise a survey in mid-April – June and a second survey in July – September)*'. Re-surveying will inform the mitigation, and licence application. Presence of active burrows should be identified in advance of the works with appropriate mitigation measures implemented. **We would expect to see the updated surveys and proposed mitigation measures**, either through the LEMP or detailed CEMP.

The applicant acknowledges the likely impacts upon the River Wensum floodplain from vehicle emissions during the operational stage (Air Quality Ecological Impact Assessment, document reference 3.10.34, ES Chapter 10 Appendix 34). The assessments include impacts from Nitrogen and Ammonia deposition (tables 5&6), stating that effects are likely to be permanent and irreversible in some instances, having major adverse impacts upon the plant communities in the case of the River Wensum Pastures CWS. The small overlap between the Wensum and the scheme is stated as a limiting factor regarding significant effects on the Wensum itself. **The applicant should confirm** whether they have considered the floodplain and associated ditches within the County Wildlife Site which discharge into the Wensum? **The applicant should confirm** what mitigation has been considered to reduce impacts upon water quality and habitat degradation through reduced air quality.

In respect of impacts on fisheries and the timings of the works, we note that the OCEMP (document reference 3.03.01) includes at 4.3.78 suitable mitigation measures to protect fish stocks. This includes the statement "Timing of construction works around the River Wensum should consider key fish migration periods in consultation with Environment Agency Fisheries Officer to agree appropriate measures to avoid the obstruction of passage or disturbance to fish moving to upstream reaches for spawning". As a starting point, it is recommended that construction works around the River Wensum avoid the coarse fish close season (15th March to 15th June inclusive) to prevent disturbance to fish spawning.

The FRA Sub Appendix M: Environmental Enhancements of the Proposed Scheme Overview (document reference 3.12.02m ES Chapter 12) includes at Figure 1-2 Environmental enhancements of the proposed scheme – Panel A – Concepts. This shows that gravel bars and riffles are proposed to be installed into the existing watercourse. We understand from the Description of the Proposed Scheme (document reference 3.03.00, ES Chapter 3) that these, and other measures to improve the River Wensum and floodplain habitat will be included in a Landscape and Ecological Management Plan (LEMP) and Detailed CEMP(s), to be secured by planning condition. **The Environment Agency should be consulted on any LEMP and CEMP** for matters within our remit. The Environmental Permitting (England and Wales) Regulations 2016 require a permit or exemption to be obtained from the Environment Agency for any activities which will take place on or within 8 metres of a main river (River Wensum).

In respect of the proposed gravel bars and riffles, consultation should include further details of the size of the gravel bars/riffles to be provided, the gravel size/specification and the method for installation. Gravel size, shape and specification must be in keeping with the existing gravel/substrate size found within the River Wensum SSSI/SAC. This is to ensure that the gravel size is suitable for fish spawning and is therefore a beneficial addition to the River Wensum. Should the gravel size be too large, it will be insufficient for fish spawning and will not assist with the natural recruitment of fish stocks. Furthermore, the installation of gravel bars/riffles would not be permissible during the coarse fish close season (15th March to 15th June inclusive).

Groundwater and contaminated land

With reference to the Drainage Strategy Report (document reference 4.04.00), it is reassuring that groundwater monitoring has been used to determine that peak seasonal groundwater levels are greater than 1.2m from the base of any infiltration lagoon. If further monitoring data in future changes this assessment, we should be re-consulted.

For the attenuation lagoons, it is noted in paragraph 11.2.3 that “The detention pond has been designed to contain a spillage event and can be isolated from the downstream network using the pollution control valve, allowing time for the contaminated water to be removed and disposed of safely off site.” The infiltration lagoons will require a similar system. Our understanding is that will be the case, but this is not apparent from the text in this section. **The applicant should confirm and amend the text.**

It is noted that attenuation lagoons are within 1.2m of groundwater, and in some cases, groundwater levels are higher than the proposed lagoon. This will create basal heave effects, and it should be ensured that the engineering effects and implications for the lagoon structures are adequately assessed by the relevant persons. The applicant should consider whether the ongoing dewatering requirements from the basal heave reduction system during the operation of the proposed scheme will require permitting by the Environment Agency and ensure that sufficient time is allowed to assess any such permit application.

We note from the ES Chapter 12 (document reference 3.12.00 - Road Drainage and the Water Environment), and the OCEMP (document reference 3.03.01) that Dewatering Management Plans and Piling Risk Assessments will be produced in relation to risks to aquifers, Private Groundwater Abstractions, Source Protection Zone 3 and Groundwater Dependent Terrestrial Ecosystems. We agree with this and look forward to a review of these documents upon production. Hydrogeological risk assessments should be completed as part of the Dewatering Management Plans and Piling Risk Assessments. The OCEMP states (at paragraph 4.11.1) that a Piling Risk Assessment (PRA) for works within the River Wensum floodplain should accompany the Flood Risk Activity Permit (FRAP) application to the Environment Agency. While this is correct, we would highlight that PRAs (and Dewatering Management Plan(s)) should also form part of the detailed CEMPs, as such activities are likely to take place outside areas where FRAPs will be required. As highlighted above, we wish to review the CEMP(s) and associated assessments, and welcome early engagement.

We note that on page 144 of the Water Framework Directive (WFD) Assessment, document reference 3.12.03 ES Chapter 12 Appendix 12.3), for the alteration to

flows and / or habitats impact, the table did not include a description of the mitigation provided.

We would also direct the applicant to the UKTAG guidance on assessing WFD groundwater balance, in particular paragraph 4.4 which has been recently updated. This may affect dewatering assessments that are proposed, and where discharges may be permissible.

The guidance can be found here: [Abstraction and Flow regulation pressures on surface waters \(wfduk.org\)](https://www.wfduk.org),

We have reviewed the River Wensum Crossing - Groundwater Modelling Report (document reference 3.12.05 - ES Chapter 12 - Appendix 12.5) and wish to **raise a number of questions for the applicant.**

In section 7.1, we note that the groundwater recharge at the location of the piles was removed. We would ask if it might be more accurate to assume that the whole area of the road itself had no groundwater recharge, as this is captured and discharged at other points (of infiltration and into surface water, in basins). Could this be modelled to determine if this affects the model output?

In section 7.2.1, it was recognised that hydraulic conductivity of the site materials has been taken from literature values and poorly characterised. Considering the scale of site investigation undertaken, we would ask why this wasn't assessed to be site specific? Can it be assessed to refine the model?

The weathered chalk depth for the model has been assumed to be a uniform 5m depth. Weathering can be determined through logging in line with CIRIA C574, as well as fractures. Can this depth be site-specifically refined and can the model use fractures to refine the model further for both chalk layers? Or is it not possible to model fracture dominated flow such as that found in chalk?

As highlighted above, the licenced daily and annual volumes for the borehole referenced as ABT4 in paragraph 2.6.2 is incorrect. This will affect the results of multiple parts of the model, including the de-icing salt spreading study, as the increased pumping rate may dilute or exaggerate the salt loading to that abstraction. Note that the daily abstraction rate is much higher than the annual divided by 365. Abstraction is likely to occur mostly in summer for irrigation purposes. Can a non-constant abstraction rate be modelled?

What would the effects be on the groundwater body, remaining abstractors and the River Wensum as receptors if any or all the abstraction licence(s) were reduced or entirely revoked?

Have the effects of climate change on rainfall and therefore recharge been considered for the 100-year model? Such effects are likely to include additional winter rainfall, less summer recharge and increased abstraction.

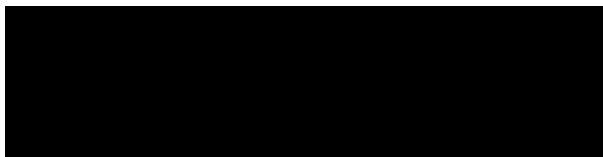
We have reviewed Chapter 13 of the Environmental Statement - Geology & Soils and associated subsections (document reference 3.13.00) and agree with the overall assessment of the risk being acceptable for the water environment.

We note that a volume of lowland peat soil will be excavated during construction, particularly during the piling process for the bridge piers. It should be ensured that the amount of peat soils affected is minimised. Measures to mitigate the impact of

carbon emissions should be in place, as peat soils will degrade and lose carbon to the atmosphere if left to dry out once excavated. The Broadland peat action plan Peat Guide Adopted 2021 provides useful guidance [Guide to understanding and addressing the impact of new developments on peat soil \(broads-authority.gov.uk\)](https://www.broads-authority.gov.uk/guidance-to-understanding-and-addressing-the-impact-of-new-developments-on-peat-soil). Where excavated peat soils are reinstated, this will need to be done in a way that does not interfere with the hyporheic zone or the permeability of the floodplain.

We trust that this advice is useful.

Yours faithfully



Sustainable Places - Planning Specialist

Direct dial [REDACTED]

Direct e-mail [REDACTED]@environment-agency.gov.uk