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A30 Chiverton to Carland Cross
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6.5 STATEMENT TO INFORM AN APPROPRIATE ASSESSMENT APPENDIX 1 SCREENING MATRICES

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APFP Regulation 5(2)(g)
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The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

A30 Chiverton to Carland Cross
Development Consent Order 201[x]

6.5 STATEMENT TO INFORM AN APPROPRIATE ASSESSMENT

APPENDIX 1 SCREENING MATRICES

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1 Screening Matrices

1.1 Potential Effects

1.1.1 Potential effects upon the European Sites which are considered within the submitted **SIAA Statement to Inform an Appropriate Assessment Report** (Volume 6, Document Ref 6.5) are provided in the table below. Effects have been grouped where appropriate for ease of presentation.

1.1.2 A plan showing the location of the European Sites can be found in **SIAA Appendix 6 Habitat Within 10m of the A30 at Breney Common SAC** (Volume 6 Document Ref 6.5).

Table 1-1 Effects considered within the screening matrices

Designation	Effects described in submission information	Presented in screening matrices as
Newlyn Downs SAC	Habitat degradation caused by changes in air quality from atmospheric pollution associated with changes in traffic during operation	Change in air quality
	Habitat degradation caused by air pollution from dust during construction	Change in air quality
	Habitat degradation caused by changes in water quality, including effects on survival and breeding success and/or plant abundance from surface water run-off.	Change in water quality
	Habitat degradation caused by changes in hydrology resulting from dewatering, including effects on survival and breeding success and/or plant abundance linked to groundwater levels.	Changes in hydrology
	Habitat degradation caused by spread of invasive non-native species	Inappropriate management and alien introductions
	Habitat degradation (indirect)[1] caused by reduced management of the site due to loss of land used to support the grazing herd, which is the form of management used to maintain its conservation objectives.	Reduced management
Fal and Helford SAC	Habitat degradation/species injuries or mortalities caused by change in water quality, including effects on survival and breeding	Change in water quality

[1]This effect has been included within the screening matrix on a precautionary basis; an existing management agreement is in place between Natural England and a tenant farmer which relies on cattle grazing adjacent land parcels to the SAC over winter. These fields will be affected by the scheme and NE are keen to ensure suitable alternative provisions are provided to ensure conservation objectives are maintained.

Designation	Effects described in submission information	Presented in screening matrices as
	success and/or plant abundance from surface water run-off or accidental spillage.	
Breney Common and Goss and Tregoss Moors SAC	Habitat degradation caused by changes in air quality from atmospheric pollution associated with changes in traffic during operation	Change in air quality
River Camel SAC	Habitat degradation caused by changes in air quality from atmospheric pollution associated with changes in traffic during operation	Change in air quality

1.2 Stage 1: Screening Matrices

1.2.1 The European Sites included within the screening assessment are:

- Newlyn Downs SAC (Matrix 1)
- Fal and Helford SAC (Matrix 2)
- Breney Common and Goss and Tregoss Moors SAC (Matrix 3)
- River Camel SAC (Matrix 4)

1.2.2 Evidence for, or against, likely significant effects on the European Sites and its qualifying features is detailed within the footnotes to the screening matrices below.

Table 1-2 Matrix Key

Report Table Heading – (Navy, Bold 10.5)	Report Table Heading
✓	Likely significant effect **cannot** be excluded
✖	Likely significant effect **can** be excluded
C	construction
O	operation
D	decommissioning
a.	footnotes provide the text to explain the assessment in full including the justification for the conclusions on whether a likely significant effect can/cannot be excluded at Stage 1: Screening.
	where effects are not relevant to a particular feature

Note: decommissioning was not considered within this assessment as typically highway schemes are designed to have a material life-span of between 20 and 40 years before major maintenance and upgrading is required. It is considered highly unlikely that the new A30 would be decommissioned after, as the road is likely to have become an integral part of the infrastructure in the area.

Table 1-3 HRA Screening Matrix 1: Newlyn Downs SAC

Name of European Site and designation: Newlyn Downs SAC																		
EU Code: UK0030065																		
Distance to NSIP: 35m to site boundary and 180m to main carriageway																		
European Site features	**Likely effects of NSIP**																	
Effect	1) Change in air quality			2) Change in water quality			3) Changes in hydrology			4) Inappropriate management and alien introductions			5) Reduced management of the site			6) In combination effects		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Temperate Atlantic wet heaths with *Erica ciliaris* and *Erica tetralix*	✓*a*	✗*b*		✓*c*	✓*d*		✓*e*	✓*e*		✓*f*			✗*g*	✗*g*		✓*h*	✓*h*	
European dry heaths	✓*a*	✗*b*		✓*c*	✓*d*		✓*e*	✓*e*		✓*f*			✗*g*	✗*g*		✓*h*	✓*h*	

Evidence supporting conclusions:

Change in air quality

a:

1.2.3 There is a risk that construction activities may inadvertently lead to dust and/or pollution events within the European Site. Dust deposition on vegetation can cause ecological stress, and may affect photosynthesis and other biological functions.

1.2.4 HA 207/07 requires consideration of the effects of construction dust for sensitive sites located within 200m of a construction site. At its closest point, the European Site is located approximately 35m from the site boundary. However, the area of the proposed works located 35m from the site boundary is currently arable/improved grassland, and is included within the site boundary due to proposed heathland restoration in this location, as a part of the scheme. Therefore, no significant dust generating activities will be occurring in this area. . When excluding the land identified for heathland regeneration the proposed development is located approximately 105m from the European Site at its closest point.

1.2.5 Volume 6 Document Ref 6.2 ES Chapter 8 Ecology and Nature Conservation states that in the case of the Newlyn Downs SAC, where vegetation may be sensitive to elevated levels of airborne dust from the works and nitrogen deposition during both construction and operation of the road, best practice control measures will be required to reduce this risk. Although following the implementation of best practice control and mitigation measures any impact is likely to be negligible and the probability of a likely significant effect (LSE) highly

unlikely, recent case law[2] indicates that screening should not take mitigation into account. As an impact cannot be ruled out without mitigation in place, uncertainty remains and therefore prior to mitigation **a likely significant effect (LSE) due to changes in air quality during construction cannot be excluded at the screening stage.**

b:

1.2.6 Air pollution or air-borne pollutants are identified in the Natura 2000 site Standard Data Form[3] as a 'Threat, pressure or activity' with a negative impact on the site.

1.2.7 Whilst the junction at Carland Cross is located closer to the European Site under the proposed development, a major part of the proposed A30 would be located further away than the existing A30 route. However, as the European Site is located within 200 m of roads affected by the scheme, and in accordance with DMRB HA207/07 further consideration of any atmospheric pollution as a result of changes in traffic movements is required.

1.2.8 DMRB HA 207/07 states that

"The pollutant of most concern for sensitive vegetation near roads, and perhaps the best understood, is NOx. The First EU Daughter Directive set a Limit Value for NOx for the protection of vegetation (an annual mean of 30 µg/m^3) to be met by 2001. This value was based on the work of the UNECE and WHO, and has been incorporated into the UK Air Quality Limit Value Regulations 2001. The policy of the UK statutory nature conservation agencies is to apply the 30 µg/m3 criterion in internationally designated conservation sites and SSSIs on a precautionary basis".

1.2.9 IAN 174/13 states that

"Where NOx concentrations are assessed to be below their objective then significant effects are not anticipated".

1.2.10 Current and projected baseline NOx is considerably below the critical level of 30µg/m^3 at the site. With the scheme in place, traffic flows in the area of the scheme within 200m of the site are predicted to be in excess of 1,000 AADT for daily traffic flows and 200 AADT for Heavy Duty Vehicle (HDV) flows. NOx levels were therefore predicted for the Do-minimum and Do-something scenarios for year of opening (2023) (See Volume 6 Document Ref 6.4 ES Appendix 5.6 Air quality-operational phase impacts).

1.2.11 Predicted NOx levels at all modelled receptor locations in the do-something scenario range from 3.4 - 6.2 µg/m^3. Predicted levels are all considerably below the critical level/limit value of 30µg/m^3. Therefore, **a LSE due to changes in air quality during operation can be excluded at the screening stage**.

[2] Judgment of the Court (Seventh Chamber) of 12 April 2018, People Over Wind and Peter Sweetman v Coillte Teoranta. Request for a preliminary ruling from the High Court (Ireland). Reference for a preliminary ruling — Environment — Directive 92/43/EEC — Conservation of natural habitats — Special areas of conservation — Article 6(3) — Screening in order to determine whether or not it is necessary to carry out an assessment of the implications, for a special area of conservation, of a plan or project — Measures that may be taken into account for that purpose Case C-323/17.

[3] http://jncc.defra.gov.uk/protectedsites/sacselection/n2kforms/UK0030065.pdf (dated 22/12/2015)

Change in water quality

c:

1.2.12 During construction, effects to surface water and groundwater features could arise from:

- Increased pollution risks from mobilised suspended solids, spillage of fuels or other harmful substances that may migrate to surface water and groundwater receptors;
- Impacts to the hydromorphological and ecological quality of watercourses associated with works within or in close proximity to watercourses, including physical change to the watercourses and longer term changes associated with sediment deposition;

1.2.13 Neither pollution to surface waters or pollution to groundwater (point sources and diffuse sources) is identified within the European Site citation as a current high level threat for the site.

Surface Water

1.2.14 The ES **Road Drainage and Water Environment** (Volume 6 Document Ref 6.2 ES Chapter 13) identifies one surface water receptor in proximity to the scheme that that flows northwards through the European Site. The watercourse is located at approximate Chainage 12+900, 220m north of scheme alignment and running along the eastern boundary of the European Site for approximately 350m (See **Surface Water Features and Existing Flood Risk** (Volume 6 Document Ref 6.3 ES Figure 13.1)). This is the only identified surface water connection between the scheme and the European Site.

1.2.15 **Road Drainage and Water Environment** (Volume 6 Document Ref 6.2 ES Chapter 13) states the following in respect of potential impacts on surface water:

"The Outline CEMP (Volume 6, Document Ref 6.4, ES Appendix 16.1 Outline CEMP) includes best practice measures for the storage of hazardous substances, the siting of higher risk activities (e.g. vehicle washdown areas) and the maintenance of plant. Following the implementation of these practices, the magnitude of any accidental spillage or temporary physical modification as a consequence of the scheme is likely to be negligible."

Groundwater

In respect of effects on groundwater quality **Road Drainage and Water Environment** (Volume 6 Document Ref 6.2 ES Chapter 13) chapter states that:

"Following the implementation of mitigation required by the Outline CEMP (Volume 6, Document Ref 6.4, ES Appendix 16.1 Outline CEMP), the magnitude of any pollution incident is likely to be negligible. Therefore, the significance of effect would be neutral."

Conclusion

1.2.16 Whilst following mitigation any impact is likely to be negligible and the probability of an LSE highly unlikely, recent case law indicates that screening should not take mitigation into account. As an impact cannot be ruled out without mitigation in

place, uncertainty remains and **a LSE due to impacts on water quality during construction cannot be excluded at the screening stage.**

d:

1.2.17 During operation, effects to surface water features and groundwater features could arise from:

- Polluted surface water runoff containing silts and hydrocarbons that may migrate or be discharged to surface water features or groundwater resources via the proposed highway drainage system;
- Accidents occurring on roads causing fuel spills and other spills of potentially polluting substances. These spills can enter into the road drainage system, and consequently enter surface water bodies that receive highway drainage. There is also a risk of spills entering groundwater from natural infiltration.

1.2.18 Neither pollution to surface waters or pollution to groundwater (point sources and diffuse sources) is identified within the European Site citation as a current high level threat for the site.

1.2.19 The ES **Road Drainage and Water Environment** chapter (Volume 6 Document Ref 6.2 ES Chapter 13) identifies one surface water receptor in proximity to the scheme that that flows northwards through the European Site. The watercourse is located at approximate Chainage 12+900, 220m north of scheme alignment and running along the eastern boundary of the European Site for approximately 350m (See **Surface Water Features and Existing Flood Risk** (Volume 6 Document Ref 6.2 ES Figure 13.1)). This is the only identified surface water connection between the scheme and the European Site.

1.2.20 The drainage design of the scheme directs runoff from the mainline carriageway and realigned side roads to 18 outfalls to surface waters. The proposed scheme design is for routine runoff to be discharged to attenuation basins with some infiltration prior to discharge to surface watercourses. The proposed carriageway drainage would include a two-stage or three-stage treatment train, consisting of filter drains and detention ponds, along with grassed swales (dry) or wet ponds where additional treatment is required. Details of the treatment drains for each area of road drainage are included in **DMRB Assessments** (Volume 6, Document Ref 6.4, ES Appendix 13.3).

Surface water impacts

1.2.21 The ES **Road Drainage and Water Environment** (Volume 6 Document Ref 6.2 ES Chapter 13) documents the approach to, and outcomes of, the Highways Agency Water Risk Assessment Tool (HAWRAT)[4] modelling, which has been developed specifically for the purpose assessing potential ecological impacts of routine runoff on surface waters to determine whether there is an environmental risk and if pollution mitigation measures are needed in specific circumstances[5].

[4] HD45/09 states that "The Highways Agency Water Risk Assessment Tool (HAWRAT) has been developed for this purpose and the methodology behind it has been derived from a collaborative research programme undertaken by the Highways Agency (HA) and Environment Agency (EA) which investigated the effects of routine road runoff on receiving waters and their ecology (Refs 7, 13, 23, 24, 35). The toxicity thresholds determined through the research programme, and which are used by the tool, have been designed to prevent adverse ecological effects in the receiving water. Equally, in artificial and heavily modified water bodies, the thresholds have been designed to prevent adverse effects on ecological potential. The thresholds have been developed with the EA and are consistent with the requirements of the Water Framework Directive (WFD)".

[5] http://www.standardsforhighways.co.uk/ha/standards/dmrb/vol11/section3/hd4509.pdf

For schemes near to or hydrologically connected to protected sites, more stringent thresholds apply. These have been applied in this assessment. The ES Chapter concludes that mitigation is required to reduce pollutants in road drainage discharges to levels acceptable to HAWRAT.

1.2.22 Whilst following mitigation any impact is likely to be negligible and the probability of an LSE highly unlikely, recent case law indicates that screening should not take mitigation into account. As an impact cannot be ruled out without mitigation in place, uncertainty remains and **a LSE due to impacts on surface water quality during operation cannot be excluded at the screening stage.**

Groundwater Impacts

1.2.23 The full Method-C assessments for the potential impacts to the groundwater body and specific receptors are available in **DMRB Assessment** (Volume 6, Document Ref 6.4, ES Appendix 13.3). It should be noted that, as stated within the ES **Road Drainage and Water Environment** chapter (Volume 6 Document Ref 6.2 ES Chapter 13), the assessments carried out for the scheme are likely to overstate the potential risk to groundwater quality.

1.2.24 In relation to the assessment of operational impacts on groundwater quality, the **Road Drainage and Water Environment** chapter (Volume 6 Document Ref 6.2 ES Chapter 13) states the following:

"The overall risk score for the HD45/09 Method-C assessment for mainline basins is between 220 and 240 depending on water table depth. This is within the 150 to 250 suggested action class range, which indicates there is a 'medium' risk of impact as a result of discharge to groundwater from routine runoff at these locations.

In accordance with the HD45/09 Method-C assessment, with a 'medium' risk of impact, depending on the quality of surface water, mitigation measures may be required for the protection of groundwater. If this were to be the case, the need for, and type of, any measures would be informed by additional risk assessment. However, the HAWRAT modelling undertaken for each pond location derived copper and zinc concentrations below the Environmental Quality Standard (EQS) threshold. This indicates that heavy metal concentrations measured in pond discharge would not pose a risk to groundwater quality.

Therefore, no further assessment has been carried out and the significance of effect is neutral."

1.2.25 Based on a neutral/no effect being predicted and as such no requirement for mitigation identified, **a LSE due to impacts on ground water quality during operation can be excluded at the screening stage**.

Accidental Spillage

1.2.26 In relation to the assessment of accidental spillage during operation, The ES **Road Drainage and Water Environment** chapter (Volume 6 Document Ref 6.2 ES Chapter 13) states the following:

"The Method-D spillage risk assessment outlined in the HD45/09 Volume 11, Section 3, Part 10 was carried out using vehicle numbers from the 2038 AADT flows to account for future growth.

The acceptable risk of a pollution incident, as stated in HD45/09, is an annual probability of less than 1%, or a return period of 1 in 100 years.

Using the HD45/09 assessment method, the risk of spillages has been calculated for predicted future traffic conditions. The greatest risk of accidental spillage at any location is below 0.03%, well within the acceptable limit. Based on the spillage assessment, the magnitude of potential impact on surface or groundwater is considered to be negligible. The significance of effect is therefore neutral."

1.2.27 Based on a neutral/no effect being predicted, **a LSE due to impacts on water quality from accidental spillage during operation can be excluded at the screening stage.**

Conclusion

1.2.28 Short-term and long-term impacts to groundwater during operation is assessed as neutral, and therefore **a LSE due to impacts on ground water quality during operation can be excluded at the screening stage**.

1.2.29 The risk of accidental spillage and the *magnitude of potential impact on surface or groundwater resulting from accidental spillage is assessed as negligible.* Therefore, **a LSE due to impacts on water quality from accidental spillage during operation can be excluded at the screening stage.**

1.2.30 Impacts on surface water during operation cannot be ruled out without mitigation in place. As uncertainty remains, **a LSE due to impacts on surface water quality during operation cannot be excluded at the screening stage**.

Changes in Hydrology

e:

1.2.31 Effects to surface water features and groundwater features could arise during construction and/or operation from:

- Localised reduction in groundwater levels associated with dewatering at cutting locations – See approach set out below;
- Permanent impacts to catchment hydrology caused by the introduction of a barrier to natural overland flow and changes to natural catchment dynamics associated with the proposed highway drainage system - the proposed scheme sits at or close to a catchment ridge and the existing highway therefore poses no additional barrier;
- Impacts to catchment hydrology caused by impact to natural groundwater springs or groundwater flow associated with proposed road cuttings that could affect base flow to watercourses – See approach set out below;
- Increased rates and volumes of surface water runoff from an increase in impermeable area or changes to the existing drainage regime leading to a potential increase in flood risk – The scheme will limit run off to greenfield rates.

1.2.32 Cuttings may require dewatering, which may impact on ground water levels, and consequently surface water features.

Groundwater

1.2.33 A high-level assessment of the potential impact on local groundwater levels has been undertaken for the length of the scheme (See **DMRB assessments** Volume 6 Document Ref 6.4 ES Appendix 13.3).

1.2.34 The groundwater level at cutting locations has been assessed through the groundwater monitoring data obtained as part of the Phase 1 GI carried out by Structural Soils in early 2017. Areas of cutting have been screened against the data to obtain locations where dewatering may be required. The following areas of cutting have been identified as having groundwater levels that could be impacted by the scheme:

- Chiverton Junction Side Road Cuttings (Ch 0+500 to 1+000m);
- Nanteague Mainline Cutting (Ch 6+300 to 7+450m);
- Two Barrows Mainline Cutting (Ch 7+450 to 7+900m);
- Zelah Side Road Crossing (Ch 8+150);
- Pennycomequick Side Road Crossing (Ch 11+000m); and
- Penglaze Mainline Cutting (Ch 11+200 to 11+750m).

1.2.35 Only one cutting has been identified as having the potential to lower ground water levels below those within the European Site[6]. This cutting is referred to as Penglaze Cutting, and is located approximately 270m to the south of the European Site (Ch 11+200 to 11+750).

1.2.36 There is a potential that these activities might impact the groundwater regime within the vicinity of the European Site and consequently have a detrimental effect on water dependent ecosystems. Therefore, further assessment is required to understand the level of hydrological connectivity between the European Site and the scheme, and **a LSE due to impacts on groundwater hydrology during construction and operation cannot be excluded at the screening stage.**

Surface water

1.2.37 Effects on the supply of water to surface water features within the European Site could occur as a result of the lowering of ground water levels. The headwaters of the nearest surface water bodies within the European Site are located approximately 700m to the north and 1300m to the north east of the cutting requiring dewatering, at a similar elevation of 105mOD. At these locations the lowering of groundwater required for the cutting would not reduce groundwater levels below the elevation of 105mOD, and therefore groundwater would continue to feed these surface water features and they would not be affected. Therefore**, a LSE due to impacts on surface water levels can be excluded at this stage.**

<u>Inappropriate management and introduction of invasive species</u>

f:

1.2.38 Introduction of invasive species could potentially occur during the construction phase. Invasive species are listed on *Schedule 9* of the *Wildlife and Countryside Act (WCA), 1981 (as amended)*, which states that it is an offence to plant or

[6] All other cuttings that require dewatering will not lower water levels below those within the SAC and therefore will not affect groundwater levels within the SAC.

otherwise cause these plants to grow in the wild. This could include cutting the plant or roots and disturbing surrounding soil if not correctly managed. Surveys undertaken in 2017 recorded Japanese knotweed (*Fallopia japonica*) as present in two areas within the survey area to the south of Chiverton Cross, and was evidently undergoing weedkiller treatment in situ. Other Schedule 9 species identified included Montbretia (*Montbretia Crocosmia* x *crocosmiiflora*), Japanese rose (*Rosa rugosa*), Rhododendron (*Rhododendron ponticum*), cotoneaster (*Cotoneaster* sp.), three-cornered garlic (*Allium triquetrum*), variegated archangel (*Lamiastrum galeobdolon*) and New Zealand pygmyweed (*Crassula helmsii*). Locations of these are presented in Figure 8.2 (Volume 6, Document Ref 6.3) and Figure 3 in 2017 Phase 1 habitat update survey report (Volume 6 Document Ref 6.4 ES Appendix 8.3)). The scheme would not require changes to the types of management measures employed on the site, during either construction or operation. Although invasive species have been recorded near the scheme and standard practice control and mitigation measures would control the spread of such species where present during the construction phase, recent case law indicates that screening should not take mitigation into account. As an impact cannot be ruled out without mitigation in place, uncertainty remains and therefore, **a LSE from inappropriate management and introduction of invasive species <u>cannot</u> be excluded.**

<u>Reduced management of the site</u>

g:

1.2.39 The scheme requires the loss of an area of grassland between the A30 and the European Site which is currently used for seasonal grazing of the cattle used for conservation grazing of the European Site, outside the growing season when cattle are required to suppress scrub and grasses to prevent them outcompeting the qualifying heathland species at the site.

1.2.40 Natural England had requested that the scheme does not constrain the land manager's ability to manage the European Site, in line with the European Sites conservation objectives.

1.2.41 The Higher Level Stewardship Agreement for the site identifies the need for sensitive management, using a combination of grazing, cutting and removal, or burning to manage lowland heathland.

1.2.42 It is calculated that the area of the fields currently grazed by the cattle amounts to approximately 21.5 hectares, and the area to be lost due to the scheme amounts to approximately 4 hectares, resulting in 17.5 hectares remaining for the cattle to graze.

1.2.43 The land manager has confirmed that there are currently 30 cows that are used to graze the European Site and these adjacent fields, and the loss of 4 hectares would significantly constrain the land manager's ability to manage the European Site.

1.2.44 However, the land manager has also confirmed that a number of fields to the west of the European Site (which are currently arable), may be converted into pasture fields. The total area proposed by the land manager which could be considered for conversion amounts to approximately 37.7 hectares, which equates to over 2.5 times the amount currently available. In summary, this additional land offers

the opportunity for replacement grazing and this will be secured though a specific management agreement.

1.2.45 Therefore, the scheme will not constrain the land manager's ability to manage the European Site, and **a LSE can be excluded**.

In combination effects

h:

1.2.46 Water quality during construction/Changes in hydrology/Changes in air quality during construction/Introduction of Invasive Species - as an impact cannot be ruled out without mitigation in place, uncertainty remains and an in-combination effect is theoretically possible. Further consideration is provided at Stage 2: Appropriate Assessment.

Table 1-4 HRA Screening Matrix 2: Fal and Helford SAC

Name of European Site and designation: Fal and Helford SAC						
EU Code: UK0013112						
Distance to NSIP: 6.4km downstream						
European Site features	**Likely effects of NSIP**					
Effect	1) Change in water quality			2) In combination effects		
Stage of Development	C	O	D	C	O	D
Sandbanks which are slightly covered by sea water all the time	×*i*	×*i*		×*j*	×*j*	
Mudflats and sandflats not covered by seawater at low tide	×*i*	×*i*		×*j*	×*j*	
Large shallow inlets and bays	×*i*	×*i*		×*j*	×*j*	
Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)	×*i*	×*i*		×*j*	×*j*	
Estuaries	×*i*	×*i*		×*j*	×*j*	
Reefs	×*i*	×*i*		×*j*	×*j*	
Shore dock *Rumex rupestris*	×*i*	×*i*		×*j*	×*j*	

Evidence supporting conclusions:

Change in water quality

i:

1.2.47 During construction, effects to surface water and groundwater features could arise from increased pollution risks from mobilised suspended solids, spillage of fuels or other harmful substances that may migrate to surface water and groundwater receptors.

1.2.48 During operation, effects to surface water features and groundwater features could arise from accidents occurring on roads causing fuel spills and other spills of potentially polluting substances. These spills can enter into the road drainage system, and consequently enter surface water bodies that receive highway drainage.

1.2.49 Two tributaries of the River Allen, which the scheme crosses, flow 6.4km downstream into the European Site. A pathway therefore exists between the scheme and the European Site.

1.2.50 The assessment of effects on water quality is presented in full within the ES **Road Drainage and Water Environment** chapter (Volume 6 Document Ref 6.2 ES Chapter 13). The chapter identifies that the study area for the assessment is based on a source – pathway – receptor approach, as recommended by HD 45/09, as follows:

- For direct effects on surface waters, the study area includes the geographical extent of the full scope of the works and all surface water features within 500m of the scheme. Indirect effects on surface waters are considered up to 1km away where features have hydrological connectivity to the scheme (note

DMRB 45/09 Annex 1 where only outfalls up to 1km distant are grouped for assessment).

- For groundwater, the study area includes the geographical extent of the full scope of the works and all groundwater features within 1km of the scheme.
- The size of the study area has been selected based on professional judgement and is proportionate with the potential impacts posed by the scheme.

1.2.51 The assessment of effects presented within, considers effects on those water features within 1km of the scheme. As presented above for responses 2 c) and d) in Matrix 1, the assessment concludes both short-term and long-term impacts to surface and groundwater quality are assessed as neutral. Taking this into consideration, noting that the proposed drainage system represents an improvement on the existing situation, the implementation of standard practice construction measures, and given the distance of the scheme from the European Site (6.4km) means that it is reasonable to conclude that any effect on water quality is unlikely to occur within the European Site. Therefore, **a LSE <u>can</u> be excluded.**

<u>In combination effects</u>

j:

1.2.52 No effect is predicted to occur, therefore there is no possibility of an in-combination effect occurring.

1.2.53 **A LSE <u>can</u> be excluded**.

Table 1-5 HRA Screening Matrix 3: Breney Common and Goss and Tregoss Moors SAC

Name of European Site and designation: Breney Common and Goss and Tregoss Moors SAC						
EU Code: UK0030098						
Distance to NSIP: 9.2km						
European Site features	**Likely effects of NSIP**					
Effect	1) Change in air quality			2) In combination effects		
Stage of Development	C	O	D	C	O	D
Northern Atlantic wet heaths with *Erica tetralix*		✓*k*			✓*l*	
European dry heaths		✓*k*			✓*l*	
Transition mires and quaking bogs		✓*k*			✓*l*	
Marsh fritillary butterfly *Euphydryas (Eurodryas, Hypodryas) aurinia*		✓*k*			✓*l*	

Evidence supporting conclusions:

Changes in air quality

k:

1.2.54 Whilst the European Site is located a considerable distance from the scheme boundary, the site is located within 200 m of roads affected[7] by the scheme, and in accordance with DMRB HA207/07 further consideration of any atmospheric pollution as a result of changes in traffic movements is required.

1.2.55 DMRB HA 207/07 states that

"The pollutant of most concern for sensitive vegetation near roads, and perhaps the best understood, is NOx. The First EU Daughter Directive set a Limit Value for NOx for the protection of vegetation (an annual mean of 30 µg/m3) to be met by 2001. This value was based on the work of the UNECE and WHO, and has been incorporated into the UK Air Quality Limit Value Regulations 2001.The policy of the UK statutory nature conservation agencies is to apply the 30 µg/m^3 criterion in internationally designated conservation sites and SSSIs on a precautionary basis".

1.2.56 IAN 174/13 states that

"Where NOx concentrations are assessed to be below their objective then significant effects are not anticipated".

1.2.57 Current and projected baseline NOx already exceed the critical level of 30µg/m^3 at the kerbside of the A30. NOx levels were predicted for the Do-minimum and

[7] traffic flows in the area of the scheme within 200m of the site are predicted to be in excess of 1,000 AADT for daily traffic flows and 200 AADT for Heavy Duty Vehicle (HDV) flows

Do-something scenarios for year of opening (2023) (See **Air quality-operational phase impacts** Volume 6 Document Ref 6.4 ES Appendix 5.6).

1.2.58 All projections under the Do-something scenario represent an increase on the Do-minimum scenario of varying degrees, and the critical level was exceeded at a number of locations (see below). All exceedances of the annual mean NOx objective were predicted to occur within 0-10m of the kerbside (See Table A1 below). Beyond 10m the predicted annual mean NOx concentrations are predicted to be below the objective.

1.2.59 Where the critical level is exceeded, it is necessary to consider the magnitude of change in pollutant concentrations between the Do-Minimum (2023) and the Do-something (2023) scenarios. IAN 174/13 and the IAQM position statement support the definition of an 'imperceptible impact' as being less than or equal to 1% of the objective. In the case of NOx this equates to an increase of just 0.3 µg/m³. Predicted increases ranged from 1.3 – 1.6 µg/m³. Therefore, **a LSE cannot be excluded at the screening stage**.

Table 1-6 Exceedances of the annual mean NOx objective (30µg/m³) in 2023

Receptor ID	Site Name	Annual mean NO_x concentration (µg/m³)			Change in NO_x (µg/m³)	Distance from roadside (m)
		Baseline (2016)	2023 DM	2023 DS		
Eco50	Breney Common and Goss and Tregoss Moor	**50.6**	**39.7**	**41.1**	1.4	0-10
Eco54	Breney Common and Goss and Tregoss Moor	**48.2**	**37.5**	**39.0**	1.4	0-10
Eco58	Breney Common and Goss and Tregoss Moor	**51.2**	**40.2**	**41.8**	1.6	0-10
Eco62	Breney Common and Goss and Tregoss Moor	**46.8**	**36.7**	**38.0**	1.3	0-10
Exceedances of the annual mean NOx objective (30µg/m³) are show in bold.						

In combination effects

I:

1.2.60 As the scheme is predicted to result in an increase in NOx concentrations that exceed the critical level and requires further assessment, **a LSE cannot be excluded at the screening stage**.

Table 1-7 HRA Screening Matrix 4: River Camel SAC

Name of European Site and designation: River Camel SAC						
EU Code: UK0030056						
Distance to NSIP: 15.7km						
European Site features	**Likely effects of NSIP**					
Effect	1) Change in air quality			2) In combination effects		
Stage of Development	C	O	D	C	O	D
European dry heaths		✕*m*		✕*n*	✕*n*	
Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles		✕*m*		✕*n*	✕*n*	
Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*)		✕*m*		✕*n*	✕*n*	
Bullhead (*Cottus gobio*)		✕*m*		✕*n*	✕*n*	
Otter (*Lutra lutra*)		✕*m*		✕*n*	✕*n*	
Atlantic salmon (*Salmo solar*)		✕*m*		✕*n*	✕*n*	

Evidence supporting conclusions:

Changes in air quality

m:

1.2.61 Whilst the European Site is located a considerable distance from the scheme boundary, the site is located within 200 m of roads affected[8] by the scheme, and in accordance with DMRB HA207/07 further consideration of any atmospheric pollution as a result of changes in traffic movements is required.

1.2.62 DMRB HA 207/07 states that

"The pollutant of most concern for sensitive vegetation near roads, and perhaps the best understood, is NOx. The First EU Daughter Directive set a Limit Value for NOx for the protection of vegetation (an annual mean of 30 µg/m3) to be met by 2001. This value was based on the work of the UNECE and WHO, and has been incorporated into the UK Air Quality Limit Value Regulations 2001.The policy of the UK statutory nature conservation agencies is to apply the 30 µg/m^3 criterion in internationally designated conservation sites and SSSIs on a precautionary basis".

1.2.63 IAN 174/13 states that

"Where NOx concentrations are assessed to be below their objective then significant effects are not anticipated".

1.2.64 Current and projected baseline NOx is considerably below the critical level of 30µg/m^3 at the site. NOx levels were predicted for the Do-minimum and Do-

[8] Traffic flows in the area of the scheme within 200m of the site are predicted to be in excess of 1,000 AADT for daily traffic flows and 200 AADT for Heavy Duty Vehicle (HDV) flows

something scenarios for year of opening (2023) (See Volume 6 Document Ref 6.4 ES Appendix 5.6 Air quality-operational phase impacts).

1.2.65 Predicted NOx levels at ecological receptor locations under the Do-something scenario range from 5.6 – 23 µg/m^3. Whilst predicted levels represent a slight increase above the do-minimum, they are all considerably below the critical level/limit value of 30µg/m^3.Therefore, **a LSE can be excluded at the screening stage**.

In combination effects

n:

1.2.66 Whilst predicted NOx levels represent a slight increase above the do-minimum, they are all considerably below the critical level/limit value of 30µg/m^3. No proposed developments have been identified within 200m of the European Site, therefore no in-combination effect is likely to occur and **a LSE can be excluded at the screening stage.**

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