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European Union
European Regional Development Fund

A30 Chiverton to Carland Cross TR010026

6.5 STATEMENT TO INFORM AN APPROPRIATE ASSESSMENT REPORT

Planning Act 2008

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

Volume 6

August 2018

Infrastructure Planning

Planning Act 2008

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 REPORT

Regulation Number:	Regulation 5(2)(g)
Planning Inspectorate Scheme Reference	TR010026
Application Document Reference	6.5
Author:	A30 Chiverton to Carland Cross Project Team, Highways England

Version	Date	Status of Version
Rev: **C01**	**23**/08/18	Application Issue

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Executive Summary

The A30 Chiverton to Carland Cross (the scheme), comprises the construction of 8.7 miles of dual carriageway between Chiverton Cross roundabout and Carland Cross junction on the A30. At the western end, the scheme connects to the existing A30 Blackwater Bypass immediately west of the existing Chiverton Cross roundabout, leading on to the Scorrier Junction further west. At the eastern end, the scheme connects to the existing Mitchell Bypass approximately 500m east of the existing Carland Cross roundabout.

The Government's Road Investment Strategy: 2015/16 to 2019/20, published in 2015, sets out the vision for the strategic road network and includes a commitment to improve the A30 between Chiverton and Carland Cross to dual carriageway standard. The transport objectives for the scheme are:

- to contribute to regeneration and sustainable economic growth
- to support employment & residential development opportunities;
- to improve the safety, operation & efficiency of the transport network;
- to improve network reliability and reduce journey times;
- to deliver capacity enhancements to the Strategic Road Network;
- to support the use of sustainable modes of transport;
- to deliver better environmental outcomes; and
- to improve local and strategic connectivity.

As a Nationally Significant Infrastructure Project (NSIP), this report has been prepared to accompany an application for a Development Consent Order (DCO) for the scheme, and to enable the competent authority, in this case the Secretary of State for Transport, to make an Appropriate Assessment when deciding whether to authorise the project, if so required. This report presents the conclusions of the 'Assessment of Implications on European Sites' (AIES) for the scheme, which presents the information required to determine whether the project is likely to have significant effects on European Sites.

In undertaking the AIES, due regard has been given to Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna (the 'Habitats Directive'), the Conservation of Habitats and Species Regulations 2017 (as amended), and the relevant guidance including Design Manual for Roads and Bridges Volume 11, Section 4, Part 1 HD 44/09 – Assessment of implications (of highways and/or roads projects) on European Sites (including appropriate assessment) (DMRB HD 44/09) (Highways Agency et al., 2009a), and Planning Inspectorate (PINS) Advice Note 10: Habitat Regulations Assessment relevant to nationally significant infrastructure projects (Planning Inspectorate, 2017) (hereafter referred to as PINS AN10).

The assessment has also taken into consideration the recent judgement of the EU Court of Justice (CJEU) in respect of Case C 323/17 (People Over Wind & Sweetman) which ruled that "it is not appropriate, at the screening stage, to take account of the measures intended to avoid or reduce the harmful effects of the plan or project on that site".

Before initiating the AIES, it is necessary to determine whether the scheme is connected with or necessary to the management of any European Sites, which the A30 is not.

The first stage of the AIES, known as 'screening', is designed to identify whether there are elements of the project which are likely to give rise to significant effects on European Sites which could compromise a European Site's conservation objectives. The screening

process identified four European Sites with the potential to be affected by the scheme, as follows:

- Newlyn Downs SAC –the only European Site within 2km of the scheme;
- Fal and Helford SAC - the only European Site in direct hydrological connectivity of a watercourse crossed by the scheme;
- Breney Common and Goss and Tregoss Moors SAC - located within 200m of the 'Affected Road Network' in an area predicted to experience an increase in traffic flows resulting from the scheme.
- River Camel SAC - located within 200m of the 'Affected Road Network' in an area predicted to experience an increase in traffic flows resulting from the scheme.

Based on consideration of the nature of the works and the qualifying features of the European Sites, the following impacts with the potential to lead to significant effects were assessed at the screening stage:

- Changes in air quality from atmospheric pollution associated with increased traffic (Newlyn Downs SAC, River Camel SAC and Breney Common and Goss and Tregoss Moors SAC);
- Changes in air quality from atmospheric pollution associated with construction activities (Newly Downs SAC);
- Changes in water quality (Fal and Helford SAC and Newlyn Downs SAC);
- Impacts on the management of the site (Newlyn Downs SAC);
- Changes in hydrological conditions (Newlyn Downs SAC); and
- Inappropriate management and introduction of invasive species (Newlyn Downs SAC).

The screening assessment documenting those potential effects that have been considered for each site, and justifying whether a 'Likely Significant Effect' (LSE) on the features of the site can be excluded, is presented in full within the 'Screening Matrices' provided in Appendix 1 of this report.

In the case of two of the European Sites, the Fal and Helford and River Camel Special Areas of Conservation, the screening stage concluded that the scheme was not likely to have a significant effect on the qualifying interest features of the site either alone or in-combination with other plans/projects.

For the two remaining sites, Newlyn Downs and the Breney Common and Goss and Tregoss Moors Special Areas of Conservation, the potential for a LSE could not be ruled out at the screening stage, and these sites were therefore progressed to Stage 2 of the process: Appropriate Assessment (AA), in order to assess whether the scheme will adversely affect the integrity of the sites in view of their conservation objectives. Sufficient information to enable the competent authority to make an AA, if required for these two sites, can be viewed in full within the 'integrity matrices' provided in Appendix 2.

The Newlyn Downs SAC is designated for its temperate Atlantic wet heaths with *Erica ciliaris* and *Erica tetralix*, and European dry heaths. The potential for adverse effects on the site (that were not screened out at Stage 1) are assessed in full within the integrity matrices provided in Appendix 2, and included potential effects resulting from:

- Changes in air quality from atmospheric pollution associated with construction activities;
- Changes in water quality during construction and operation;

- Changes in hydrological conditions;
- Inappropriate management and introduction of invasive species; and
- In-combination effects.

The Breney Common and Goss and Tregoss Moors SAC is designated for its Northern Atlantic wet heaths with *Erica tetralix*, European dry heaths, Transition mires and quaking bogs and population of Marsh fritillary butterfly. The Appropriate Assessment for the site assessed the potential for adverse effects resulting from changes in air quality during operation.

Subsequent to the full and proportionate Appropriate Assessment presented within the integrity matrices provided in Appendix 2, and in view of the relevant site conservation objectives, the potential for any adverse effect on the integrity of the Newlyn Downs and Breney Common and Goss and Tregoss Moors SACs was excluded.

The HRA process at Stage 2: Appropriate Assessment, has concluded that no reasonable scientific doubt remains and in 'the light of the best scientific knowledge in the field', the project will not adversely affect the integrity of any European Site, alone or in combination with other plans or projects.

Therefore, the HRA can be concluded at Stage 2: Appropriate Assessment, and there is no requirement to move to HRA Stages 3 and 4 for the purposes of compliance the Conservation of Habitats and Species Regulations 2017 (as amended).

1 Introduction

1.1.1 Highways England has commissioned the preparation of this report to inform an 'Assessment of Implications on European Sites' (AIES) associated with an application for a Development Consent Order (DCO) for the A30 Chiverton to Carland Cross scheme (the scheme). The report provides the '**Statement to Inform an Appropriate Assessment**' (Volume 6, Document Ref 6.5), should the Secretary of State (as competent authority) determine that Appropriate Assessment is required.

1.1.2 This AIES has been undertaken following the relevant guidance including DMRB Volume 11 Section 4 Part 1 HD 44/09 Assessment of implications (of highways and/or roads projects) on European Sites (including appropriate assessment) [1], and PINS AN10: Habitat Regulations Assessment relevant to nationally significant infrastructure projects [2].

1.1.3 Information has been collated on behalf of Highways England, as the scheme proponent, to assess whether there would be a 'likely significant effect' due to the scheme on any European Sites, as required by Regulation 63 of the Conservation of Habitats and Species Regulations 2017 (as amended) (hereafter referred to as 'the Habitats Regulations') [3].

1.2 This Report

1.2.1 Nationally Significant Infrastructure Projects (NSIPs), and The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (APFP Regulations) [4], require the submission of a report on European Sites and the provisions of the Habitats Regulations [3] with the DCO application.

1.2.2 This report presents the conclusions of the AIES for the scheme, which has been prepared to present information to determine whether the project is likely to have significant effects on European Sites.

1.2.3 The relevant Secretary of State is the competent authority for the purposes of the Habitats Directive [5] and the Habitats Regulations [3] in relation to applications for NSIPs. The report has been produced in support of the draft DCO (Volume 3 Draft Development Consent Order) to enable the competent authority, in this case the Secretary of State for Transport, to make an Appropriate Assessment (if required) when deciding whether to authorise the project.

1.2.4 It has been informed by the information prepared for the 2018 ES (Volume 6 Environmental Statement), and by the A30 Chiverton to Carland Cross Stage 3 Traffic Model which is described in full within the **Combined Modelling and Appraisal (ComMA)** report (Volume 7 Document Reference 7.4 Transport Reports).

1.2.5 Screening forms the first stage of the AIES, and is designed to identify whether there are elements of the project which are likely to give rise to significant effects on European Sites which could compromise a European Site's conservation objectives.

1.2.6 The screening process has identified four European Sites with the potential to be affected by the scheme, as follows:

- Newlyn Downs Special Area of Conservation (SAC);
- Fal and Helford SAC;

- Breney Common and Goss and Tregoss Moors SAC; and
- River Camel SAC.

1.2.7 In accordance with the PINS Guidance AN10 [2], the screening exercise for these four sites is set out in full in 'the Screening Matrices' included within Appendix 1 to this report.

1.2.8 In the case of two European Sites (Fal and Helford SAC and the River Camel SAC) the screening stage concluded that the scheme was not likely to have a significant effect on the qualifying interest features of the site either alone or in-combination with other plans/projects.

1.2.9 For the two remaining sites, the Newlyn Downs SAC and Breney Common and Goss and Tregoss Moors SAC, the potential for a likely significant effect (LSE) could not be ruled out at the screening stage, and these sites were therefore progressed to Stage 2 of the process: Appropriate Assessment (AA). The full assessment of these two sites can be viewed in the 'integrity matrices' which are included at **Integrity Matrices** (Volume 6 Document Reference 6.5 SIAA Appendix 2).

1.2.10 The draft findings of this report were presented and discussed with the relevant Statutory Environmental Body (SEB), in this case Natural England, in order to agree the outcome of the screening and initial assessment. The report was then finalised taking into account the feedback received and the details of the agreed matters are provided in the **Natural England Statement of Common Ground (SOCG)** (Volume 7 Document Ref 7.5).

1.3 History of the AIES

1.3.1 An earlier AIES for the scheme was produced in June 2017 by WSP [6]. At the time, the screening exercise only identified potential for effects on one site, the Newlyn Downs SAC. In summary, the screening exercise concluded that "*With the implementation of appropriate mitigation, and with the appropriate location of construction compounds and haul roads, it is considered unlikely that there will be significant effects as a result of changes in air quality, hydrological processes and hydrogeological processes. However, further study is required to confirm this preliminary assessment. This will be undertaken in Stage 3 of the project*".

1.3.2 Key details of the scheme have since been updated in line with emerging scheme design, the DCO assessment undertaken by Highways England, as well as having regard to the comments received through the statutory consultation in early 2018.

1.3.3 This report updates and supersedes all previous assessments, presenting the conclusions of the AIES for the scheme as proposed within the DCO application submitted to PINS.

1.4 Report Structure

1.4.1 This report has been adapted from the Highways England Product Control Framework (PCF) guidance [1], with consideration given to PINS AN10 [2]. The report is structured as follows:

- Chapter 1: Introduction

- Chapter 2: Background to the scheme - summarises the needs case, objectives and description of the proposed scheme on which the assessment has been based;
- Chapter 3: Assessment Methodology – Sets out the legislative framework for the assessment, the relevant advice, a description of the process and methods applied in the assessment.
- Chapter 4: Protected Sites Potentially Affected by the Proposals – Applying the relevant thresholds from guidance set out in DMRB, this chapter identifies the European Sites included within the assessment;
- Chapter 5: Screening Assessment - Summarises the outcomes of Stage 1: Screening which is outlined in further detail in the 'Screening Matrices' included in Appendix 1;
- Chapter 6: Mitigation - Summarises any mitigation that is relied upon to exclude likely significant effects and details how the mitigation is to be secured through the DCO process, where relevant reference is made to documents which include further detail on the prescribed mitigation;
- Chapter 7: Appropriate Assessment - Summarises the outcomes of Stage 2: Appropriate Assessment which is outlined in further detail in the 'Integrity Matrices' included in Appendix 2;
- Chapter 8: Proposals for Monitoring and Reporting;
- Chapter 9: Consultation – Sets out the consultation undertaken with the Statutory Nature Conservation Body, areas of agreement and any matters outstanding;
- Chapter 10: Conclusion

2 Background to the scheme

2.1 Introduction

2.1.1 The A30 is a main route from London to Land's End and is particularly important as one of only two trunk roads connecting numerous settlements in Devon and Cornwall.

2.1.2 The A30 Chiverton to Carland Cross section lies north west of Truro and provides businesses and residents in this corridor with access to the wider Strategic Road Network (SRN), predominantly the M5 and A38. It is the last remaining length of single carriageway between Camborne and the M5 motorway.

2.1.3 Due to the low standard of the existing route between Chiverton and Carland Cross, this section of the A30 experiences congestion and delays throughout the year, with poor journey time reliability. These problems are exacerbated in summer months, when traffic flows increase due to tourist traffic. The route is in need of upgrading to meet Highways England's objectives of maintaining the smooth flow of traffic, making the network safer and supporting economic growth.

2.1.4 The Government's Road Investment Strategy: 2015/16 to 2019/20 Road Period, published in 2015 [7], sets out the vision for the strategic road network and includes a commitment to improve the A30 between Chiverton and Carland Cross to dual carriageway standard. Volume 1 Document Ref 1.1

2.1.5 On the 3rd of July 2017, the preferred route for the A30 Chiverton to Carland Cross scheme was announced. The preferred route provides a new dual carriageway running to the north of the existing A30 between Chiverton and Chybucca and to the south between Chybucca and Carland Cross, shown in **Location Plan** (Volume 6 Document Ref 6.3 ES Figure 1.1). The existing A30 will be retained to provide a local route. The announcement of the preferred route followed a comprehensive review of options and extensive analysis of responses to the 2016 public consultation.

2.1.6 Since the preferred route announcement in 2017, Highways England has continued to assess and develop the scheme as part of the Preliminary Design development. The public and stakeholders were given a further opportunity to comment on the latest scheme design as part of the statutory consultation which was held between January and March 2018. Subsequently, a series of further design changes have been made in response to the comments received, which are described in **Consideration of Alternatives** (Volume 6 Document Reference 6.2 ES Chapter 3).

2.1.7 The scheme is defined as a NSIP under section 22(2) of the Planning Act 2008 (as amended) [8], as it comprises the construction of a highway that is wholly within England, where the Secretary of State (SoS) is the Highway Authority and it exceeds the relevant limit in hectares set out in subsection (4).

2.1.8 As the scheme is an NSIP, Highways England is required to make an application for a DCO to the Planning Inspectorate. If granted by the SoS, the DCO will provide the necessary authorisation to allow the scheme to be constructed.

2.2 The Promoter

2.2.1 Highways England is promoting the A30 Chiverton to Carland Cross scheme. Highways England is the Government company charged with operating, maintaining and improving England's motorways and major A roads on behalf of the Department for Transport. Formerly the Highways Agency, it became a Government company in April 2015.

2.2.2 Highways England is responsible for motorways and major (trunk) roads in England. Their road network totals over 4,400 miles. Whilst this represents only two per cent of all roads in England by length, these roads carry a third of all traffic by mileage and two thirds of all heavy goods traffic.

2.3 Scheme Objectives

2.3.1 The objectives for the scheme were developed with due consideration of the national objectives of Department of Transport (DfT) and Highways England, Cornwall Council's transport objectives, and the constraints on the current A30. The transport objectives for the scheme are:

- to contribute to regeneration and sustainable economic growth;
- to support employment & residential development opportunities;
- to improve the safety, operation & efficiency of the transport network;
- to improve network reliability and reduce journey times;
- to deliver capacity enhancements to the Strategic Road Network;
- to support the use of sustainable modes of transport;
- to deliver better environmental outcomes; and
- to improve local and strategic connectivity.

2.4 Description of the scheme

2.4.1 The A30 Chiverton to Carland Cross, hereinafter referred to as the "scheme", comprises the construction of 14km (8.7 miles) of new A30 two lane all-purpose rural dual carriageway between the existing Chiverton Cross roundabout in the west and Carland Cross roundabout in the east. At the western end, the scheme connects to the existing A30 Blackwater Bypass immediately west of the existing Chiverton Cross roundabout, leading on to the Scorrier Junction further west, and at the eastern end, the scheme connects to the existing Mitchell Bypass approximately 500m east of the existing Carland Cross roundabout.

2.4.2 The existing Chiverton Cross and Carland Cross roundabouts are to be replaced with new grade separated all-movement gyratory junctions to provide connections to the local major side road network whilst maintaining uninterrupted traffic flow on the mainline A30. Additionally, a grade separated restricted movement dumbbell junction with west facing slip roads only is to be included at Chybucca.

2.4.3 The **General Arrangement** for the proposed scheme can be found in Volume 6 Document Reference 6.3 ES Figure 2.1. The description of the mainline and associated side roads and junctions is provided, with the scheme developed in accordance with the Design Manual for Roads and Bridges (DMRB) design standards and best practice.

2.4.4 In summary, the scheme comprises the following main features:

- The construction of a new A30 rural all-purpose dual carriageway approximately 14km (8.7 miles) in length and predominantly off-line from the existing single carriageway route;
- The re-alignment of the existing A30 at Chiverton, Chybucca, Zelah and Carland Cross to maintain as a parallel local route;
- The construction of a new grade separated all-movement gyratory junction at Chiverton, with realigned connections to the B3277, A3075, A390 and the existing A30 side roads and the removal of the existing Chiverton Roundabout;
- The construction of a new Walking, Cycling and Horse Riding underbridge just west of the new Chiverton junction, providing grade separated WCH access between the side roads and across the new A30;
- The construction of a new grade separated restricted movement dumbbell junction at Chybucca, with west facing slips only and connections to the existing A30 and the B3284 side roads;
- The construction of a new side road underbridge at Tresawsen providing grade separated access across the new A30;
- The stopping up of the Kilavose side road at Marazanvose;
- The construction of a Green overbridge crossing for ecology at Marazanvose, with an associated Walking, Cycling and Horse-riding (WCH) route linking between the adjacent side roads;
- The construction of a reinforced slope at the existing Western Power Distribution overhead pylon east of Marazanvose;
- The retention of and improvement of the existing Two Barrows underbridge, with the new staggered junction for the Shortlanesend Road with the realigned existing A30, retaining grade separated access across the new A30;
- Demolition of the existing bridge at Tolgroggan Farm and the construction of a new accommodation overbridge over the new and realigned A30;
- The construction of a new Walking, Cycling and Horse Riding underbridge at Church Lane, with grade separated WCH access across the new A30 and retained access to Zelah;
- The construction of a new side road underbridge at Trevalso Lane, providing grade separated access across the new and existing A30 and linking with the realigned Henver Lane;
- The construction of a new side road underbridge at Pennycomequick;
- The stopping up and realignment of the Ennis Lane side road;
- The construction of a reinforced slope at the existing historic Round Barrow near to Ennis Farm;
- The construction of a new Walking, Cycling and Horse Riding underbridge at Newlyn Downs, with grade separated WCH access across the new A30 between the A39 and the realigned existing A30;
- The construction of a new grade separated all-movement dumbbell junction at Carland Cross, with connection to the A39 side road and replacing the existing Carland Cross Roundabout;
- The diversion of a gas high pressure pipeline, water mains, power cables and telecommunications cables and mast, as well as the removal of sections of an abandoned oil pipeline;
- The construction of a number of new private laneways along the scheme, providing new and retained access from the existing side road network;

- The construction of 9 new public lay-bys along the scheme, a rest area on the realigned B3277 and a number of maintenance lay-bys and emergency access points;
- The construction of 20 new drainage attenuation ponds for the new A30 and realigned side roads; and
- The construction of 5 major drainage culverts and 14 multi-species culverts under the new A30 and side roads.

Drainage Strategy

2.4.5 The drainage strategy (Doc Ref: HA551502-ARP-HDG-SW-RP-CD-000002) sets out the approach to drainage for the scheme and has been prepared in accordance with DMRB HD33/16 – Design of Highways Drainage Systems. The drainage scheme includes 20 new drainage attenuation ponds for the new A30 and realigned side roads. The following design principles as set out in the drainage strategy will be applied:

- The proposed A30 mainline and junction slip road drainage will be adopted and maintained by Highways England. All other highway drainage will be the responsibility of Cornwall Council.
- Realignment of the existing side roads will require proposed drainage to connect into existing networks. The proposals will provide a like for like or reduction of impermeable area into the existing networks. Approval will be required by Cornwall Council.
- The highway drainage will be designed to cater for a 1 in 1 year return period event without surcharging.
- The design will ensure that there is no surface water flooding on the highway for a 1 in 5 year return period event.
- The design will ensure that the attenuation ponds/ infiltration basins can accommodate the 1 in 100-year event with an allowance for climate change.
- The allowance for climate change will be 40% in accordance with Cornwall Council drainage requirements.
- Where infiltration is not possible, the surface water runoff will be attenuated to GRR in order to mitigate the impact on the existing watercourses.
- Attenuation ponds/infiltration basins will have a maximum storage depth of 1.5m with 0.3m freeboard to the top of the pond. A permanent water depth of 0.15m will be provided where required. Side slopes will be 1:3 for maintenance access with one side 1:5 for better access and to allow mammal escape from the pond. The design will be in accordance with the requirements of HA103/06.
- In cuttings, the surface runoff will be drained to grass lined combined surface water/ground water filter drains in the verge in accordance with Manual of Contract Documents for Highway Works (MCHW) – Highway Construction Detail (HCD) B1 Type 1A. On embankments, the surface water runoff will be drained via surface water channels in accordance with MCHW – HCD B14 Type A. Where kerbs are required, the surface water runoff will be drained via gully outlets to carrier pipes in accordance with HCD B9 Type 21A. Lined cut-off ditches at the top of cuttings and unlined cut-off ditches at bottom of embankments will intercept natural runoff. If the natural topography falls away from the road alignment, cut off ditches will not generally be provided other than to mitigate local flooding risk. Fin drains will be used in accordance with HCD F18 on embankments. When the highway is in cutting, the use of grass

lined filter drains will also drain the subsurface of the pavement along with the surface water runoff.

2.5 Programme

2.5.1 The start date for the construction phase would depend upon a number of factors including the grant of a Development Consent Order. It is currently anticipated that the construction activities for the scheme would commence in March 2020, as identified in the Road Investment Strategy (RIS).

2.5.2 Projects are planned and designed to meet the future, anticipated needs and characteristics of a certain year. For the purpose of this assessment, the scheme opening and design years have been taken as 2023 and 2038 respectively.

2.5.3 The construction programme would be finalised by the main contractor in advance of the works. The duration of the works is currently estimated to require a construction period of at least 30 months, including two full earthworks seasons and excluding advance works/vegetation clearance/major utility diversions, archaeological testing and de-trunking of the existing road.

2.5.4 Following construction there will be a 36-month environmental aftercare maintenance and monitoring period.

Construction access and vehicle movements

2.5.5 During the construction of the new scheme, there will be deliveries of new materials to site, as well as movement of material and earthworks within the site. The earthworks strategy and mass haul proposals will confirm how site won material will be moved around site and if necessary where material will need to be imported to site or exported off-site as a waste. Full details of the earthworks strategy are shown in the **Mass haul diagram** (Volume 6 Document Ref 6.4 ES Appendix 10.1).

2.5.6 With the combination of earthworks slopes of 1:2 and 1:2.5 and over ten significant drainage ponds, the scheme earthworks are estimated to be balanced with only specific structural and drainage fill materials to be imported to site. This figure does not currently include bulking factors and so will need to be refined during detailed design.

2.5.7 In addition to this, with an average depth of 350 millimetres, the scheme is estimated to generate a topsoil volume of approximately 400,000 metres cubed, which will need to be stored before being re-used on the new embankment and cutting slopes and within the adjacent essential landscaping areas.

2.5.8 Construction traffic for any delivery of new materials to site will primarily use the existing A30 but will access the construction site and compounds off the associated side roads including the A390, B3284, A39, Allet Road, Shortlanesend Road and Pennycomequick Road.

2.5.9 A haul road will be established by the contractor through the site, so it is assumed that all the site won material will be moved within the site using the haul road rather than the existing A30, with plant crossings required on some of the side roads.

2.5.10 It will be the responsibility of the Contractor to ensure that the site is operated safely and kept secure to prevent unauthorised access to members of the public.

This will include the site accesses, site haul routes and the protection of scaffolding and open excavations. The haul route would be placed along sections of the scheme which would likely consist of single sized stone on a geotextile membrane. This would generate dust and would need regular watering.

Plant, equipment and lighting

2.5.11 The bulk earthworks will be constructed with typical earthworks moving plant such as excavators and dump trucks, track loaders and towed rollers.

2.5.12 The structures, which include, pre-cast portal frame bridges, composite bridges and pre-stressed concrete beam bridges, will be constructed with plant such as pilling rigs, cranes (crawler/mobile), concrete mixer trucks, disc cutters, scaffolding and forklift trucks.

2.5.13 Working hours are likely to be adjusted in line with the daylight hours through the winter months and limited night time working only required for the tie-ins to the existing road network. Lighting of the compounds and at work sites along the site will be limited.

2.5.14 Plant crossings will be provided on all roads except on the existing A30.

2.5.15 Lighting associated with the construction phase will be designed to minimise light pollution at night, whilst being consistent with the requirements of site safety and security. Luminaires will be directional and minimise up-lighting and sky glow. Details of the measures to be included within temporary construction phase lighting design are included in the **Outline CEMP** (Volume 6 Document Ref 6.4 ES Appendix 16.1).

Limits of deviation

2.5.16 This assessment has been conducted within the limits of deviation outlined in Limits of Deviation within Approach to EIA (Volume 6 Document Ref 6.2 ES Chapter 4).

2.5.17 Within this report, the worst-case scenario has been taken into account. The limits of deviation contained in Section 4.3 of Volume 6 Documents Reference 6.2 Chapter 4 have been considered having regard to the scope for change under the draft DCO. It is considered that the proposed limits of deviation will not give rise to any materially new or materially worse adverse environmental effects from those already reported.

3 Assessment Methodology

3.1 Legislative Requirements and Guidance

3.1.1 The HRA process of assessing the likely effects on European Sites is a multi-stage and iterative process.

3.1.2 The HRA process is governed by Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna (the 'Habitats Directive') [5], which is transposed into UK law by the Habitats Regulations [3].

3.1.3 Under Article 6 of the Habitats Directive, before granting consent for a plan or project the competent authority (in this case the Secretary of State) is required to undertake an 'Appropriate Assessment' where a plan or project, not directly connected with, or necessary to, the management of a Natura 2000 site SAC, Special Protection Area (SPA) or candidate SAC (cSAC)), either individually or in combination with other plans or projects, is likely to have a significant effect upon that site.

3.1.4 As a matter of UK Government policy, the same requirement applies for possible SACs (pSACs), potential SPAs (pSPAs) and Ramsar sites and (in England) proposed Ramsar sites. For the purpose of this report, all of the above-mentioned sites are referred to as 'European Sites'.

3.1.5 Consideration has also been given to the relevant guidance including:

- PINS AN10 HRA relevant to NSIP [2];
- DMRB Volume 11, Section 4, Part 1 HD 44/09 – Assessment of implications (of highways and/or roads projects) on European Sites (including appropriate assessment) [1];
- DMRB IAN 141/11 Assessment of Implications (of Highways and/or Roads Projects) on European Sites (Including the Appropriate Assessment) [9] and the Planning Act 2008 [8];
- DMRB Volume 11 Section 3 Part 1 Annex F Section F2, HA 207/07 Air Quality [10].
- DMRB IAN 174/13 - Updated advice for evaluating significant local air quality effects for users of DMRB Volume 11, Section 3, Part 1 'Air Quality (HA207/07) [11]
- English Nature Habitats Regulations Guidance Notes 1 to 6 [12] ; and
- European Commission guidance on the Assessment of plans and projects significantly affecting Natura 2000 sites [13].
- IAQM Position Statement: Use of a Criterion for the Determination of an Insignificant Effect of Air Quality Impacts on Sensitive Habitats [14].
- IAQM Guidance on the assessment of dust from demolition and construction [15]

3.1.6 PINS AN10 [2] states that "If an NSIP, when taken alone or with existing and known future projects, is likely to affect a European Site and/or a European Marine Site, the Applicant must provide a report with the application showing the site(s) that may be affected together with sufficient information to enable the competent authority to make an AA, if required". It goes on to state that "Anyone applying for development consent for a NSIP must provide the competent authority with such information as may reasonably be required 'for the purposes

of the assessment' or 'to enable them to determine whether an appropriate assessment is required".

3.2 Stages of the HRA process

3.2.1 Table 3-1 below sets out the key stages in the HRA assessment process, determined with reference to the aforementioned guidance documents.

Table 3-1 The key stages of Habitats Regulations Assessment

Stage	Description
1.Screening	Determining whether the project is likely to have significant effects on the interest features of European Site(s) alone or in combination with other plans or projects. According to AN10, where no likely significant effects are identified, the Screening Matrix should be submitted together with a completed 'No Significant Effects Report' and HRA stages 2-4 will not be required. Where significant effects are identified or there is uncertainty, then the assessment should progress to stage 2.
2. Appropriate Assessment	At this stage, a more detailed assessment is required of the effects on the integrity of the European Site(s). There are 3 potential outcomes: • Evidence is sufficient and demonstrates there will be no adverse effects. • Evidence is sufficient but indicates that there will be an adverse effect. • there is insufficient evidence to determine the effects. Where the latter conclusion is reached then the 'precautionary principle' should be applied and it should be assumed that adverse effects would result.
3. Assessment of Alternative Solutions	Where it cannot be concluded beyond reasonable scientific doubt that the project will not have an adverse impact on the integrity of the site it is necessary to assume that adverse impacts will occur. At this point it is necessary for the Competent Authority to consider whether there are alternative solutions. If there are no other alternatives, then the assessment proceeds to stage 4.
4. Consideration of Imperative Reasons of Overriding Public Interest (IROPI)	Where it has been determined that adverse impacts remain and that no alternative solutions exist, the Competent Authority will determine whether there are any Imperative Reasons of Overriding Public Interest (IROPI). Where it considers that IROPI exists the Competent Authority may grant consent subject to the securing of necessary compensation measures.
5. Compensatory Measures	For the project to proceed, it will be necessary to design, implement, manage and monitor compensation measures.

3.2.2 Stage 1 of the HRA process must be undertaken in all cases. The last four stages are required where significant effects are likely or uncertain, and the outcome of the previous stage indicates that the next stage is necessary.

3.3 Stage 1: Screening

3.3.1 The screening stage requires the application of a number of steps, as described below, to determine whether the scheme has the potential to give rise to a Likely Significant Effect (LSE). The process of determining LSE has utilised the technical assessments undertaken and provided as part of the **Environmental Statement** (ES) (Volume 6, Document Ref 6.2).

Management Test

3.3.2 The first part of the process requires consideration of whether the works are connected with or necessary to the management of a European Site(s) and whether they are 'emergency operations'. Where a proposal is connected with the management of a European Site it may be granted permission to proceed.

3.3.3 The majority of Highway projects are considered unlikely to be connected with the management of a European Site(s), as for the most part, projects are not conceived for the purpose of conservation management of a site. The A30 scheme is not directly connected with or necessary to the management of any European Site, and therefore the scheme must proceed to the next stage of the process.

Identification of the potential for 'Likely Significant Effects'

3.3.4 The next stage in the screening process is to ascertain whether the project is likely to have significant effects on the qualifying interest features of European Site(s) alone or in combination with other plans or projects.

3.3.5 Broadly speaking this process requires the application of the following steps:

- Consideration of the nature of the project works to determine the likely associated impacts,
- Identification of European Sites that could be affected;
- Determining whether those impacts identified are likely to give rise to a significant effect at the European Sites identified.

3.3.6 Considerations in determining whether the scheme would result in LSE include:

- The proximity of the proposed project works, and any environmental pathways, to European Sites;
- The features of the European Site, including primary reasons for selection and the Conservation Status of the qualifying interests;
- The vulnerabilities of the European Site and its conservation objectives; and
- Any cumulative impacts that could arise from the project in combination with other plans and projects.

The nature of the works and potential impacts of the scheme

3.3.7 The potential impacts and spatial scope of any impact is determined by the nature of the works proposed and the receptors that could be impacted upon. The proposed works are summarised above at section 3.2, and described in full within the **Environmental Statement** (Volume 6, Document Ref 6.2).

3.3.8 Consideration has been given to the construction and operational phases of the scheme, including consideration of those impacts commonly arising from road

schemes, as identified in DMRB Volume 11 Section 3 Part 4 Ecology and Nature Conservation, [1]including:

- Loss of habitats through direct land-take;
- Severance, where a scheme may create a barrier and divide existing habitats or wildlife corridors (e.g. hedgerows);
- Creatures may be killed trying to cross a road which cuts across their traditional territory or foraging routes;
- Polluted run-off from roads;
- Effects of road lighting;
- Changes in air quality from atmospheric pollution associated with increased traffic;
- Changes in water quality;
- Changes in hydrological conditions;
- Spread of invasive non-native species; and
- Pollution and/or disturbance during construction.

3.3.9 This list has formed the basis for considering the potential for effects on the European sites on the basis of identifying the sources of impacts, the features of the site (receptors), and the pathways that could link those sources to the features of the site.

3.3.10 Decommissioning has not been 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.

Identification of European Sites and their Qualifying Features

3.3.11 The Screening process requires the identification of any European Sites that could be affected by the development. Sites can be affected directly, for example through destruction of habitat, or indirectly via other environmental pathways such as pollution of watercourses or changes in air quality.

3.3.12 As set out in DMRB [16], the following criteria have been used to identify European Sites for inclusion in the assessment:

- **European Sites located within the scheme boundary.**
- **European Sites within 2km of the scheme** - DMRB HD 44/09 [1] recommends that as a general rule, consideration should be given to any European Sites within 2km of the route corridor or project boundary. Two kilometres is considered a precautionary distance for consideration of all European Sites as the effects of habitat loss, fragmentation, inappropriate management, air pollution and introduction of invasive species are only likely to occur within less than 1km of the scheme and could therefore not directly affect the sites themselves.
- **European Sites where bats are a primary qualifying feature within 30km of the scheme** - Sites which are designated for mobile species that travel beyond the boundaries of the designated site, such as bats and birds could be affected by the scheme if designated species travel within the zone of influence of the impacts of the scheme. A further search was therefore carried

[1] Available at: http://www.standardsforhighways.co.uk/ha/standards/dmrb/vol11/section3/11s3p04.pdf

out for European Sites where bats are a primary qualifying feature within 30km of the scheme in line with DMRB HD44/09 [1], which is based on studies of movements of bats between summer and winter roosts.

- **European Sites where wintering birds are qualifying features within 5km of the scheme** - Wintering birds can range several kilometres from the site boundaries but it is considered that past 5km, the size of the area potentially available to them is so large that it is highly unlikely that habitat further afield would be critical to the integrity of the site and the population of the species.
- **European Sites where the scheme is crossing/adjacent to upstream of, or downstream of, watercourses designated in part or wholly** - Changes to water levels and water quality could affect sites in hydrological connectivity with the scheme. Therefore, following guidance in DMRB HD 44/09 [1], where a project lies across; adjacent; up or downstream of a watercourse (which is designated in part or wholly as a European Site), consideration has been be given to potential impacts on the European Site(s). Indirect effects on surface water are considered up to 1km away where features have hydrological connectivity to the scheme. 1km is an appropriate area of search that is consistent with the DMRB methodology for cumulative effects, and beyond this distance effects are no longer considered to accumulate.
- **For air quality effects: designated sites within 200m of roads affected by the scheme** - Deposition of particles, ammonia, metals and salt can increase close to roads. However, the pollutants of most concern for sensitive vegetation near roads are nitrogen oxides although some habitats can be affected by deposition of particles (dust). In accordance with DMRB HA 207/07 [10], sites within 200m of roads affected could be subject to increased levels of traffic-related deposition and were therefore identified for further consideration.

3.3.13 Following the identification of relevant European Sites, an understanding of the conservation objectives, qualifying features, and vulnerabilities of the sites was obtained from the information provided in the site citations (See Section 4.2 and Volume 6 Document Ref 6.5 SIAA Appendix 4 Natura Citations).

Identifying Likely Significant effects

3.3.14 Following the identification of potential impacts and European Sites, consideration was given as to whether the scheme could result in a likely significant effect (LSE) on the interest features of the site, either alone or in-combination with other projects.

3.3.15 A LSE is defined as any effect that may reasonably be predicted as a consequence of a plan or project that may affect the conservation objectives of the features for which the site was designated, but excluding trivial or inconsequential effects [17].

3.3.16 Habitats regulation guidance [17] indicates that Likely significant effects would include any of the following:

- Causing change to the coherence of the site or to the Natura 2000[2] series (e.g. presenting a barrier between isolated fragments, or reducing the ability of the site to act as a source of new colonisers);
- Causing reduction in the area of habitat or of the site;

[2] Natura 2000 sites are SACs, SPAs and EMSs, but are taken to include all 'international sites' as defined earlier in this report.

- Causing direct or indirect change to the physical quality of the environment (including the hydrology) or habitat within the site;
- Causing ongoing disturbance to species or habitats for which the site is notified;
- Altering community structure (species composition);
- Causing direct or indirect damage to the size, characteristics or reproductive ability of populations on the site;
- Altering the vulnerability of populations etc to other impacts;
- Causing a reduction in the resilience of the feature against external change (for example its ability to respond to extremes of environmental conditions); and,
- Affecting restoration of a feature where this is a conservation objective.

3.3.17 The consideration of the potential for LSE has been informed by the conservation objectives for the features of the European Sites identified. In particular, details of the vulnerability of features to potentially influencing factors (such as the vulnerability of certain habitats to increases in Nitrogen Oxide (NOx) were used to identify the likelihood of impacts affecting features of the sites.

3.3.18 Where the Screening assessment identifies likely effects, or the likelihood of significant effects is uncertain, further assessment is required.

3.3.19 In accordance with HD 44/09 [1], "*Where there is some doubt as to the conclusion of the screening exercise, or where there is insufficient objective evidence to support the conclusion, then an outcome of 'sufficient uncertainty' has been adopted*".

Consideration of mitigation at the screening stage

3.3.20 The recent judgement of the EU Court of Justice (CJEU) in respect of Case C 323/17 (People Over Wind & Sweetman)[3] has addressed the question of '*Whether, or in what circumstances, mitigation measures can be considered when carrying out screening for appropriate assessment under Article 6(3) of the Habitats Directive?*'. Responding to this question, the CJEU ruled that "*Article 6(3) of the Habitats Directive must be interpreted as meaning that, in order to determine whether it is necessary to carry out, subsequently, an appropriate assessment of the implications, for a site concerned, of a plan or project, it is not appropriate, at the screening stage, to take account of the measures intended to avoid or reduce the harmful effects of the plan or project on that site*"[4].

3.3.21 As such, the principle established through the CJEU decision has been applied at the screening stage, such that where measures are required to mitigate a potential effect they have not been taken into account at the screening stage.

3 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.

4 http://curia.europa.eu/juris/document/document.jsf?text=&docid=200970&pageIndex=0&doclang=en&mode=req&dir=&occ=first&part=1&cid=619449

Air Quality Effects

3.3.22 The HRA process for assessing potential air quality effects on European Sites is set out in **European Sites Air Quality Screening Process** (Volume 6 Document Ref 6.5 SIAA Appendix 7), the screening process is described below and the process for carrying out appropriate assessment in respect of potential air quality effects is described at Section 3.4.

3.3.23 In accordance with the guidance on the assessment of potential air quality effects set out in DMRB HA207/07 [10], Designated Sites within 200m of roads affected by the scheme were identified.

3.3.24 The consideration of potential operational air quality effects has been based on the predicted changes in traffic flows on the Affected Road Network (ARN). The study area for the ARN is defined using the traffic data within the Traffic Reliability Area (TRA). For further information, see **DMRB Assessments** (Volume 6 Document Ref 6.4 ES Appendix 13.3).

3.3.25 Affected roads are defined as those roads that meet any of the following criteria:

- Road alignment will change by 5 m or more; or
- Daily traffic flows will change by 1,000 AADT or more; or
- Heavy Duty Vehicle (HDV) flows will change by 200 AADT or more; or
- Daily average speed will change by 10 km/hr or more; or
- Peak hour speed will change by 20 km/hr or more.

3.3.26 In accordance with DMRB HA 207/07 [10], where a Designated Site has been identified as being within 200m of the ARN, NOx concentrations should be calculated within the site.

3.3.27 Whilst the ARN is defined within DMRB HA207/07 [10] based on either positive or negative changes in traffic flow, for the purpose of HRA screening only the increases in traffic flows are considered to have the potential for adverse effects. Any reduction in traffic flows would be expected to result in an improvement in air quality and therefore such European Sites are screened out in relation to potential air quality effects.

3.3.28 Newlyn Downs SAC is located approximately 35m to the site boundary and 180m to main carriageway and was therefore scoped into the air quality assessment.

3.3.29 Through consultation, NE highlighted that significant effects could occur as a result of increases in HDV flows that are below the 200 AADT DMRB Threshold, and that in NE's view the DMRB thresholds (i.e. <200 HDV vehicles or <10kmh average speed increase [10]) may not be sufficiently precautionary (see Table 9-1 below). As such, a review of traffic flows within 200 metres of any European Site was undertaken to understand whether there were circumstances where increases below the 200 AADT threshold occurred and required further consideration. This review is presented in Table 3-2 below, along with reasons for scoping European Sites in or out of the air quality assessment and consideration in this report.

Table 3-2 Modelled traffic flows for the proposed A30 within 200m of European Sites

		Do minimum		Do something		Change		
Location on the modelled network	**European Site within 200m of modelled network**	**AADT**	**HDV AADT**	**AADT**	**HDV AADT**	**AADT**	**HDV AADT**	**Scoped in/out of assessment based on ARN criteria**
A30 through the Breney Common SAC and adjacent to River Camel SAC	Breney Common and Goss & Tregoss Moors SAC and River Camel SAC	32,231	2,215	35,983	2,422	3,752	208	AADT and HDV exceed DMRB criteria Scoped into the assessment
A39 through central Truro	Fal & Helford SAC	36,244	1,642	33,250	1,369	-2,994	-273	Substantial decrease in AADT and HDV AADT. Scoped out of assessment
A390 out of Truro toward St Austell	Fal & Helford SAC	2,998	973	2,855	565	-144	-408	Decrease in AADT and HDV AADT. Scoped out of assessment
B3285 between Perranporth and Goonhavern	Penhale dunes SAC	5647	225	4598	194	-1049	-31	AADT and HDV decrease Scoped out of assessment

3.3.30 The focus on NOx as opposed to other pollutants is based on advice set out in HA 207/07 which states that "*Concentrations of NOx are used as the main basis for evaluating the significant effects. Where the assessment indicates a potentially significant effect on a designated site due to changes in NOx concentrations, then changes in nutrient nitrogen deposition should be calculated as supporting information to further assist in the evaluation of significance*". Emissions from vehicles produce NOx in greater quantities than other pollutants and whilst other pollutants such as ammonia may be harmful to ecology, NOx is assessed as the main pollutant of concern.

3.3.31 Therefore, the first step is to predict NOx concentrations at locations on the ARN within 200m of the designated sites (See Volume 6 Document Ref 6.5 SIAA Appendix 3 Air Quality Calculations for calculations). NOx concentrations were predicted, within Volume 6 Document Ref 6.2 Chapter 5 using modelling software Advanced Dispersion Modelling System (ADMS Roads) for the following scenarios:

- Baseline (2016)
- Projected baseline (2023)
- Do-Minimum (DM) Scenario (opening year) (2023).
- Do-Something (DS) Scenario (2023).

3.3.32 For local air quality, the opening year of the scheme (2023) is likely to be the worst case scenario as vehicle emissions and background pollutant concentrations are anticipated to decrease over time due to improvements in fuel technologies.

3.3.33 Results were predicted for receptors placed at set distances away from the roadside at 0, 10, 50, 100 and 200m.

3.3.34 The latest emission factors from IAN185/15 (version 3) [18] speed banding provided by Highways England were applied. The verification factor calculated during the ES was used to adjust NOx concentrations details are provided in **Air Quality – sites used for verification** (Volume 6, Document Ref 6.4, ES Appendix 5.5). The IAN 170/12 method was followed to adjust results to allow for sensitivity of future year emission factors.

3.3.35 Current UK air quality regulations and the EU Directive on ambient air quality set objectives and Limit Values covering a range of pollutants. These are presented in Table 1.1 of IAN 174/13 [11]. For NOx, the objective (also referred to as the critical level) is set at 30µg/m^3 as an annual mean. IAN 174/13 states that where predicted NOx concentrations are predicted to be below their objective then significant effects are not anticipated.

3.3.36 Predicted NOx concentrations for the Do-something (2023) scenario were therefore compared against the objective of 30µg/m^3 as an annual mean, below which 'significant effects are not anticipated'[5]. Where the objective was not exceeded then a LSE can be excluded.

3.3.37 Where the objective is exceeded, consideration was given to 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.

3.3.38 IAN 174/13 states that where a change in NOx exceeds the air quality thresholds but is imperceptible (i.e. less than or equal to 0.3 µg/m³) then the scheme effect is likely to be not significant for local air quality. This is supported by the IAQM position statement which concludes that a change of this magnitude can reasonably be taken to be *"an insignificant effect*" and "*such a conclusion would eliminate the requirement to proceed to 'appropriate assessment*" (IAQM, 2016). This information should be used to inform an assessment of overall significance from an ecological perspective.

3.3.39 Where both the critical level and a change of greater than 1% are exceeded then further assessment is required at Stage 2: Appropriate Assessment.

[5] 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/m3 criterion in internationally designated conservation sites and SSSIs on a precautionary basis*".

Assessing effects resulting from changes in hydrology

3.3.40 Effects to surface and/or 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.

3.3.41 Where the surface and/or groundwater feature is within 1km of the scheme or is identified as being in direct hydrological continuity (as defined under DMRB 45/09), then the potential for a LSE resulting from changes in hydrology, was considered further.

3.3.42 A high-level assessment of the potential impact on local groundwater levels has been undertaken for the length of the scheme, as follows:

- The groundwater level at cutting locations was 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 were screened against the data to obtain locations where dewatering may be required.
- Where dewatering may be required, groundwater levels in the location of the cutting were compared with groundwater levels within any nearby European Site.
- Where dewatering would not reduce ground water levels below those within the European Site then a LSE could be excluded.
- Where dewatering has the potential to lower ground water levels below those within the European Site then the potential for a LSE could not be excluded at the screening stage, and this was taken forward for further consideration at stage 2: Appropriate assessment.

Assessing effects resulting from the loss of land used to keep grazing cattle[6]

3.3.43 Through consultation, NE confirmed that an area of land between the scheme and Newlyn Downs SAC (but not within the European Site itself) currently provides important supplementary grazing for cattle. Cattle are required on the European Site during the growing season to suppress scrub and grasses in order

[6] This effect has been included within the screening assessment 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.

to prevent the qualifying heathland species being outcompeted. The cattle are kept on the land in question outside the growing season.

3.3.44 NE 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.

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

3.3.46 The area of land currently grazed by cattle was calculated, along with the area lost to the scheme. Discussions were then held with the landowner to establish the number of cattle currently using the land, and to understand whether the land available following the loss of land to the scheme will be adequate to sustain the herd in the future. For further information, see Newlyn Downs SAC (Matrix 1) within the **Screening Matrices** (Volume 6 Document Ref 6.5 SIAA Appendix 1).

In-Combination Effects

3.3.47 It is a requirement of the Habitat Regulations to examine the potential for a plan or project to have a significant effect either alone or in combination with other plans and projects. It is therefore necessary to identify those other plans and projects which may give rise to in-combination effects with the scheme.

3.3.48 As outlined within DMRB HA 205/08 [19], the study area for each in-combination effects assessment has been determined on a case-by-case basis[7]. Where a potential impact has been identified on a European designated site during the screening stage, in-combination effects have been considered within a study area specific to the potential impact identified, as set out in the relevant DMRB guidance.

3.3.49 For example, where a potential air quality impact has been identified, other projects and plans within 200m of the designated site have been considered, as set out within DMRB HA 207/07 [10]. Where a potential hydrology impact has been identified, other projects and plans within one kilometre of the designated site have been considered, as set out within DMRB HD 45/09 [20].

3.3.50 When assessing in-combination effects for each European Site, consideration has also been given to each feature and whether two different types of impact could result in adverse effects on a feature. For example, a project could have an effect on water quality which can alter the nutrient balance on a site/feature without being a significant effect, but such an effect could still be significant when considered in-combination with air quality impacts on the same site/feature resulting from another plan or project.

3.3.51 Every reasonable effort has been made to identify other potentially relevant plans and projects, and to obtain further details of named projects where possible, based on the consultation with Cornwall Council and a review of available documents in the public domain.

3.3.52 In-combination effects have been considered following a review of:

[7] 'The study area for the assessment should be defined on a case-by-case basis, reflecting the project and the surrounding environment over which significant effects can reasonably be thought to have the potential to occur both from that project and in combination with other projects' DMRB HA 205/08 [16]

- The Cornwall Council planning website for details on current planning applications within 2km; and
- Local policies including:
  - The Cornwall Local Plan Strategic Policies (2010-2030) [21];
  - The Cornwall Local Plan Strategic Policies (2010-2030) Community Network Area Sections [22]; and
  - Truro and Kenwyn Neighbourhood Development Plan [23].

3.3.53 A proportionate approach has been applied to identifying developments considered to be relevant and appropriate for the purposes of an in-combination assessment, based on the type and scale of potential effects generated by a proposed development. Planning applications were selected on the basis of the following criteria:

- The development includes more than 1 hectare of development and which is not for a dwelling house development.
- The development includes more than 150 dwelling houses.
- The area of the development exceeds 5 hectares.

3.3.54 These criteria are based on Town and Country Planning (Environmental Impact Assessment) Regulations 2017 as the majority of 'other developments' being considered fall under the Town and Country Planning regime.

3.3.55 Consideration was also given to other relevant NSIPs which are recorded on the Planning Inspectorate's Programme of Projects.

3.3.56 In order for an in-combination effect to be possible, the proposal would have to have some level of adverse impact. Where the scheme or other proposed developments are found to have no adverse effect, in-combination effects were scoped out of the AIES in-combination effects assessment. See sections 5.3 and 7.3 below.

3.3.57 The air quality assessment was based on a future opening year scenario (2023) which was projected in the traffic model, applying TEMPRO v7.2[8]. The TEMPRO forecasts take into account national projections of:

- Population;
- Employment;
- Housing;
- Car ownership; and
- Trip rates.

3.3.58 The future year scenarios (both Do-minimum and Do-something) take into account forecast growth based on a combination of background growth and specific proposed developments. A review of the local plan and major planning applications was undertaken to identify 'large developments' in proximity to the

[8] Trip End Model Presentation Program (TEMPRO) is a piece of software used to interrogate the National Trip End Model (NTEM). The National Trip End Model is developed by the Department for Transport (DfT) and forecasts the growth in trip origin-destinations up to 2051 for use in transport planning. The forecasts take into account national projections of:
- Population;
- Employment;
- Housing;
- Car ownership; and
- Trip rates.

scheme that were considered likely to have a direct impact on future demand on the A30. These were then included at specific locations within the model.

3.3.59 The developments incorporated into the traffic model included developments in large settlements such as Newquay, Redruth and St Austell, from which trips were expected to use either the A30 between Chiverton and Carland Cross or pass through one of the junctions in the scheme area. A full description of the developments included within the model is included at Section 5.2 of the **Transport Reports** (Volume 7 Document Ref 7.4). In addition to growth arising from development, LDV and HDV growth forecasts have been incorporated in the model, based on the National Transport Model (NTM) and the National Road Traffic Forecasts (NRTF). As such, the air quality assessment accounts for any cumulative or in-combination impacts arising from traffic growth under both the Do-minimum and Do-something scenarios.

3.4 Stage 2: Appropriate Assessment

3.4.1 AN10 states that where, following the screening stage, "*LSE on a European Site, either from the project alone or in combination with other plans or projects, cannot be discounted, the Applicant needs to consider whether those effects will adversely affect the integrity of the site in view of its conservation objectives*". This stage is referred to as Appropriate Assessment (AA).

3.4.2 The methods used to make such an assessment will depend on the nature of the likely impact, and the interest features, conservation objectives and conservation status of the site potentially affected. The **Screening Matrices** (See Volume 6 Document Ref 6.5 SIAA Appendix 1 Screening Matrices) and section 5.3 below set out the European Sites and qualifying features that have been screened out of further assessment at Stage 1, along with a justification for doing so.

3.4.3 The remaining European Sites and potential impacts identified to be taken forward to AA were:

- Newlyn Downs SAC –
  - Effects resulting from changes in air quality during construction.
  - Effects resulting from impacts on surface and groundwater quality during construction and on surface water quality during operation.
  - Effects resulting in changes in hydrology during construction and operation.
  - Effects resulting from the spread of invasive species during construction.
- Breney Common and Goss and Tregoss Moors SAC –
  - Effects resulting from changes in air quality during operation.

<u>Assessment of potential air quality effects during construction</u>

3.4.4 Where there is a risk that construction activities may inadvertently lead to dust and/or pollution events within European Sites, then dust deposition on vegetation can cause ecological stress, and may affect photosynthesis and other biological functions.

3.4.5 HA 207/07 [10] requires consideration of the effects of construction dust for sensitive sites located within 200m of a construction site.

3.4.6 The IAQM guidance on the assessment of dust from demolition and construction [15] states that during construction the "most common impacts are dust soiling and increased ambient PM10 concentrations due to dust arising from activities on the site". It goes on to set out the approach to assessing the risk of effects from construction dust. The first stage of the process is to screen the requirement for a more detailed assessment based on the distance between the ecological site and the construction works. The IAQM guidance then states that "Where the need for a more detailed assessment is screened out, it can be concluded that the level of risk is "negligible", and any effects will be not be significant".

3.4.7 Consideration was given to the IAQM Screening criteria which state that an assessment will normally be required where there is an 'ecological receptor' within:

1. 50 metres of the boundary of the site; or
2. 50 metres of the route(s) used by construction vehicles on the public highway, up to 500 metres from the site entrance(s).

3.4.8 The guidance states that this "*step is deliberately chosen to be conservative, and will require assessments for most schemes. The distances cited here, and in subsequent sections, take account of the exponential decline in both airborne concentrations and the rate of deposition with distance, as well as practical experience of members of the Working Group*".

3.4.9 Where the criteria are met, then further assessment would be undertaken in accordance with the approach set out in the IAQM guidance. Where the criteria are not met then an adverse effect on integrity can be excluded.

Assessing effects resulting from changes in hydrology

3.4.10 The proposed scheme will require dewatering at a number of locations. This may result in the lowering of groundwater levels which could affect groundwater and surface water flows elsewhere, including within European Sites, and could consequently result in an effect on the European Site.

3.4.11 Following a high-level assessment of the potential impact on local groundwater levels, only one site: Newlyn Downs SAC, was identified as being potentially affected by the lowering of groundwater levels resulting from dewatering during the construction of cuttings.

3.4.12 Should groundwater levels within a European Site be affected, then the potential for a significant effect is likely to depend on the magnitude of change and the nature of the receptors present within the area affected. Any water sensitive species or habitats are more likely to be affected by changes in ground and surface water levels.

3.4.13 The likelihood of ground and surface water levels being affected within a European Site is likely to be dependent on a number of factors including the underlying geology and extent of hydraulic continuity.

3.4.14 The following process was applied in order to determine the potential for an adverse effect on integrity, as a result of changes in hydrology:

- Identification of dewatering locations;
- Calculation of drawdown (i.e. lowering of groundwater levels) based on the reduced ground level and the ground water level at the dewatering location;

- An understanding of the topography of the site and the surroundings was obtained, and a qualified hydrologist undertook a comparison of the likely ground water levels at the European Site with the groundwater levels at the point of dewatering;
- Where the groundwater levels at the point of dewatering were judged to be below those at the European Site, then the potential for an impact is judged to exist and further work is required to understand the level of hydraulic connectivity between the proposed cutting and the European Site.
- Hydraulic connectivity between the scheme and the European Site is primarily considered in a context of permeability of individual geological formations. The permeability includes the interconnection between the pores at a fundamental level within the rock (primary permeability) and fractures/joints in rock bodies (secondary porosity).
- Where relevant, a desk study review of the hydrogeological setting of the scheme and the European Site was undertaken to identify the potential for hydraulic connectivity and to assess the potential hydrogeological impacts of the proposed scheme on the European Site.
- Where the proposed scheme and the European Site are assessed as being in hydraulic continuity then further consideration of the extent of impact and the nature of those habitats likely to be affected is required. Where sites are not assessed as being in hydraulic continuity then an adverse effect on integrity can be excluded.

3.4.15 Inputs were sought from a qualified hydrologist, and the details of the groundwater assessment can be viewed in full within **DMRB assessments** (Volume 6 Document Ref 6.4 ES Appendix 13.3).

Assessing potential effects from emissions to air during operation

3.4.16 Where a change in NOx exceeds the objective (30µg/m^3) and there is a predicted increase in NOx of greater than 0.3 µg/m³ at the screening stage, then HA 207/07 [10] requires further assessment of nitrogen deposition rates to be calculated within the site. Nitrogen deposition rates were calculated applying the guidelines set out in Annex F in DMRB HA 207/07 [10].

3.4.17 The total deposition rate at each receptor were obtained from the Air Pollution Information System Website [24], which is the most up to date source of data for critical loads.

3.4.18 Where changes in nitrogen deposition exceed the critical load, then the magnitude of change in nitrogen deposition between the Do-Minimum (2023) and the Do-something (2023) scenarios should be considered. IAN 174/13 [11] and the IAQM position statement [25] support the definition of an 'imperceptible impact' as being less than or equal to 1% of the critical load, therefore any change below 1% against the Do-minimum scenario was determined to not be significant from a local air quality perspective.

3.4.19 Information on predicted NOx concentrations and nitrogen deposition levels, as well as the magnitude of change in these factors, was considered alongside an understanding of the habitat types within those areas exhibiting exceedances.

3.4.20 All exceedances of the critical level for NOx were predicted to occur within 10 metres of the roadside (See Volume 6 Document Ref 6.5 SIAA Appendix 2 Integrity Matrices). Therefore, habitat types in the European Site within 10 metres

of the affected road were identified and mapped using GIS. This provided an understanding of whether the habitat affected is either a qualifying feature, or supports a qualifying feature of the European Site, whether the habitats present are sensitive to air pollution, and what proportion of the overall qualifying habitat within the European Site is likely to be affected.

3.4.21 The following factors were then considered by an ecologist and, applying expert judgement, a determination of whether the scheme could result in an adverse effect on the integrity of the European Site was made:

- The predicted levels and magnitude of change in NOx and Nitrogen Deposition levels considered against the critical loads (lower and upper limits) for the habitats present;
- The area of habitat within any area of the European Site where the projected nitrogen deposition exceeds the critical load for that habitat;
- Whether the habitat affected is either a qualifying feature, or supports a qualifying feature of the European Site;
- Whether the European Site and/or the habitat affected is sensitive to air pollution, either directly or indirectly;
- The conditions that the habitat affected is currently exposed to;
- What the area and quality of the habitat affected is as a proportion of the qualifying habitat within the European Site; and
- The nature and effect of any potential impact of Nitrogen Deposition on the species/habitats in question.

3.4.22 Exceedances of both critical levels and of critical loads were only predicted for the Breney Common and Goss and Tregoss Moors SAC (Volume 6 Document Ref 6.5 SIAA Appendices 1 Screening Matrices and 2 Integrity Matrices). In order to identify whether the habitat affected in this location is either a qualifying feature, or supports a qualifying feature of the European Site reference was made to the following information:

- Phase 1 and NVC Habitat surveys undertaken for and contained within the 2003 ES for the A30 Bodmin to Indian Queens scheme (which comprises the stretch of the ARN that runs through the Breney Common and Goss and Tregoss Moors SAC); and
- Phase 1 and NVC Habitat surveys undertaken by Natural England in 2015 (data obtained over a range of years) to inform a review of the Mid-Cornwall Moors SSSI Boundary.
- Aerial imagery and OS Mapping

3.5 General Principles

Precautionary Principle

3.5.1 The relevant DMRB guidance highlights the need to apply the Precautionary Principle in HRA. This means that conservation objectives should prevail where there is uncertainty, or that harmful effects will be assumed in the absence of evidence to the contrary. Assessments must be objective and proportionate. Any impact on a qualifying feature that was greater than negligible at screening stage, would be considered potentially significant.

Mitigation

3.5.2 HD 44/09 [1] requires that mitigation is an integral part of the project development. Mitigation measures can be examined in order to ascertain that projects will not adversely affect the integrity of a site.

3.5.3 Consistent with the recent judgement of the CJEU in respect of Case C 323/17 (People Over Wind & Sweetman)[9], where mitigation is prescribed to support a conclusion of no adverse effect on integrity at the Appropriate Assessment stage, this mitigation is described and its effectiveness assessed within the relevant 'integrity matrix'.

3.5.4 A brief description of any assumed measures is provided in Section 6 below.

3.5.5 In accordance with HD 44/09, any mitigation relied upon to reach a conclusion of no adverse effect on integrity should be plainly established and uncontroversial.

The Use of Professional Judgement

3.5.6 Professional judgement was used in the carrying out of this work and in the interpretation of results, where specific guidance was not available. The following considerations were taken into account when applying professional judgement in the assessment of likely significant effects/adverse effects on integrity:

- The existing baseline context;
- The Site's conservation objectives;
- The vulnerability/sensitivity of the receiving environment/features of interest;
- When the risk of effects is likely to occur (e.g. construction and/or operation);
- Consideration of the precautionary principle;
- The likely geographical extent and/or magnitude of impact; and
- Previous experience with similar impacts and ecological features, where available.

9 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.

4 Protected Sites Potentially Affected by the Proposals

4.1 Relevant European Sites

4.1.1 Applying the relevant thresholds from guidance set out in DMRB (as described above), the following European Sites were identified for consideration as part of the HRA screening process:

European Sites within 2km:

4.1.2 There is one internationally important site within 2km of the scheme: Newlyn Downs SAC.

European Sites where bats are a primary qualifying feature within 30km of the scheme:

4.1.3 No SACs within 30 kilometres were identified with bats as a qualifying species.

European Sites where wintering birds are qualifying features within 5km of the scheme:

4.1.4 There are no such European Sites within 5km of the scheme.

European Sites with hydrological connectivity with the scheme:

4.1.5 There is one internationally important site that is hydrologically connected to the scheme: Fal and Helford SAC, via two tributaries of the River Allen, which the scheme crosses, upstream of the European Site (as shown on Figure 2-1 of the **River Habitat Appraisal Report** (Volume 6 Document Ref 6.4 ES Appendix 8.4).

4.1.6 Newlyn Downs SAC is also within 500 metres of the scheme and as such has the potential to be directly affected through surface or ground water connections.

4.1.7 Penhale Dunes SAC is located to the north of the scheme. There are no watercourses that cross the scheme that have hydrological connectivity to Penhale Dunes SAC, and furthermore, it is over 1 km from the scheme. Therefore it has not been included within the assessment.

4.1.8 Indirect effects on surface water are considered up to 1 kilometre away where features have hydrological connectivity to the scheme: No further sites have been identified.

European Sites with the potential for air quality effects to occur:

4.1.9 Following the results of the Traffic Model and the ARN criteria, Newlyn Downs SAC, River Camel SAC and Breney Common and Goss and Tregoss Moors SAC were scoped into this assessment due their potential to experience negative effects through increases in traffic and consequently emissions to air, see Table 3-2 above.

4.2 Description of relevant European Sites including European Site features and conservation objectives

4.2.1 The following information has been taken from the JNCC website and Natura 2000 Standard Data Forms for the relevant European Sites (see Volume 6 Document Ref 6.5 Appendix 4).

Table 4-1 Newlyn Downs SAC characteristics

Characteristics of European Site(s) *A brief description of the European Site should be produced, including information on:*	
Name of European Site and its EU code	Newlyn Downs SAC (SAC EU Code UK0030065)
Location and distance of the European Site from the scheme	Located in the Cornwall and Isles of Scilly Unitary Authority, central grid reference SW835544, 225m north of the scheme, at the eastern end of the scheme. Shown in **Statutory and Non-Statutory Designated Sites** (Volume 6.3 Document Ref 6.3 Figure 8.1).
European Site size	115.41 ha
Key features of the European Site including the primary reasons for selection and any other qualifying interests	Annex I habitats that are a primary reason for designation: i. Temperate Atlantic wet heaths with *Erica ciliaris* and *Erica tetralix* Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site: European dry heaths
Vulnerability of the European Site – any information available from the standard data forms on potential effect pathways	The Natura 2000 site Standard Data Form[10] states that the following threats and pressures have a high impact on the European Site: ii. Invasive non-native species iii. Outdoor sports and leisure activities, recreational activities Air pollution, air-borne pollutants
European Site conservation objectives – where these are readily available	The Conservation Objectives for the European Site[11] state: *Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;* • *The extent and distribution of qualifying natural habitats* • *The structure and function (including typical species) of qualifying natural habitats, and* • *The supporting processes on which qualifying natural habitats rely*

[10] http://jncc.defra.gov.uk/protectedsites/sacselection/n2kforms/UK0030065.pdf dated 22/12/2015
[11] http://publications.naturalengland.org.uk/publication/5703529960308736?category=5374002071601152 dated 30/06/2014

Table 4-2 Fal and Helford SAC characteristics

Characteristics of European Site(s) *A brief description of the European Site should be produced, including information on:*	
Name of European Site and its EU code	Fal and Helford SAC (SAC EU Code UK0013112)
Location and distance of the European Site from the scheme	Located in the Cornwall and Isles of Scilly Unitary Authority, central grid reference SW747261, located 6.4km to the south of the scheme and shown in **Statutory and Non-Statutory Designated Sites** (Volume 6.3 Document Ref 6.3 Figure 8.1).
European Site size	6362.83 ha
Key features of the European Site including the primary reasons for selection and any other qualifying interests	Annex I habitats that are a primary reason for designation: i. Sandbanks which are slightly covered by sea water all the time ii. Mudflats and sandflats not covered by seawater at low tide iii. Large shallow inlets and bays iv. Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) Annex I habitats present as qualifying features, but not a primary reason for selection of this site: v. Estuaries vi. Reefs Annex II species that are a primary reason for site selection: vii. Shore dock (*Rumex rupestris*)
Vulnerability of the European Site – any information available from the standard data forms on potential effect pathways	The Natura 2000 site Standard Data Form[12] states that the following threats and pressures have a high impact on the European Site: i. Shipping lanes, ports, marine constructions ii. Other human intrusions and disturbances iii. Outdoor sports and leisure activities, recreational activities iv. Pollution to groundwater (point sources and diffuse sources) v. Invasive non-native species
European Site conservation objectives – where these are readily available	The Conservation Objectives for the European Site[13] state: *Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:* • *The extent and distribution of qualifying natural habitats and habitats of qualifying species;* • *The structure and function (including typical species) of qualifying natural habitats;* • *The structure and function of the habitats of qualifying species;* • *The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely;* • *The populations of qualifying species; and,* • *The distribution of qualifying species within the site*.

[12] http://jncc.defra.gov.uk/protectedsites/sacselection/n2kforms/UK0013112.pdf dated 22/12/2015
[13] http://publications.naturalengland.org.uk/publication/5176566698999808 dated 01/10/2014

Table 4-3 Breney Common and Goss and Tregoss Moors SAC characteristics

Characteristics of European Site(s) *A brief description of the European Site should be produced, including information on:*	
Name of European Site and its EU code	Breney Common and Goss and Tregoss Moors (SAC EU Code UK0030098)
Location and distance of the European Site from the scheme	Located in the Cornwall and Isles of Scilly Unitary Authority, central grid reference SW951598, located approximately 9.2km north-east of the scheme and shown in **Statutory and Non-Statutory Designated Sites** (Volume 6.3 Document Ref 6.3 Figure 8.1).
European Site size	824.05 ha
Key features of the European Site including the primary reasons for selection and any other qualifying interests	Annex I habitats that are a primary reason for designation: i. Northern Atlantic wet heaths with *Erica tetralix* ii. European dry heaths iii. Transition mires and quaking bogs Annex II species that are a primary reason for site selection: *iv.* Marsh fritillary butterfly *Euphydryas (Eurodryas, Hypodryas) aurinia*
Vulnerability of the European Site – any information available from the standard data forms on potential effect pathways	The Natura 2000 site Standard Data Form[14] states that the following threats and pressures have a high impact on the European Site: i. Biocenotic evolution, succession ii. Human induced changes in hydraulic conditions iii. Grazing Other human intrusions and disturbances
European Site conservation objectives – where these are readily available	The Conservation Objectives for the European Site[15] state: 4.2.2 *Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;* • The extent and distribution of qualifying natural habitats and habitats of qualifying species • The structure and function (including typical species) of qualifying natural habitats • The structure and function of the habitats of qualifying species • The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely • The populations of qualifying species, and, • The distribution of qualifying species within the site.

[14] http://jncc.defra.gov.uk/protectedsites/sacselection/n2kforms/UK0030098.pdf dated 22/12/2015
[15] http://publications.naturalengland.org.uk/publication/5740864198410240 dated 01/10/2014

Table 4-4 River Camel SAC Characteristics

Characteristics of European Site(s) *A brief description of the European Site should be produced, including information on:*	
Name of European Site and its EU code	River Camel (SAC EU Code UK0030056)
Location and distance of the European Site from the scheme	Located in the Cornwall and Isles of Scilly Unitary Authority, central grid reference SX061708, located approximately 15.7km north-east of the scheme and shown in **Statutory and Non-Statutory Designated Sites** (Volume 6.3 Document Ref 6.3 Figure 8.1).
European Site size	604.7 ha
Key features of the European Site including the primary reasons for selection and any other qualifying interests	Annex I habitats present as qualifying features, but not a primary reason for selection of this site: i. European dry heaths ii. Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles iii. Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) Annex II species that are a primary reason for site selection: iv. Bullhead *Cottus gobio* v. Otter *Lutra lutra* Annex II species present as a qualifying features, but not a primary reason for site selection: vi. Atlantic salmon *Salmo salar*
Vulnerability of the European Site – any information available from the standard data forms on potential effect pathways	The Natura 2000 site Standard Data Form[16] states that the following threats and pressures have a high impact on the European Site: i. Invasive non-native species ii. Human induced changes in hydraulic conditions iii. Pollution to groundwater (point sources and diffuse sources)
European Site conservation objectives – where these are readily available	The Conservation Objectives for the European Site[17] state: *Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;* • *The extent and distribution of qualifying natural habitats and habitats of qualifying species* • *The structure and function (including typical species) of qualifying natural habitats* • *The structure and function of the habitats of qualifying species* • *The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely* • *The populations of qualifying species, and,* • *The distribution of qualifying species within the site.*

[16] http://jncc.defra.gov.uk/protectedsites/sacselection/n2kforms/UK0030056.pdf dated 22/12/2015
[17] http://publications.naturalengland.org.uk/publication/5116409273122816 01/10/2014

4.3 Potential impacts of the scheme

4.3.1 Based on the nature of the works summarised above at 2.4, and described in full within the **ES** (Volume 6, Document Ref 6.2), the construction and operation of the scheme has the potential to give rise to the following impacts on European Sites:

- Changes in air quality from atmospheric pollution associated with increased traffic;
- Changes in water quality;
- Loss or degradation of habitat supporting qualifying features;
- Impacts on the management of the site;
- Changes in hydrological conditions;
- Spread of invasive/non-native species.

4.3.2 This list has formed the basis for considering the potential for effects on the European Sites on the basis of identifying the sources of impacts and the pathways that could link those sources to the features of the site (receptors).

4.3.3 A number of impacts have been excluded from further assessment. These are set out below along with an explanation of the reasons for not considering them any further:

- Loss of habitats through direct land-take – the scheme is not located within a European Site and therefore no direct loss of habitat will occur within European Sites;
- Severance, where a scheme may create a barrier and divide existing habitats or wildlife corridors (e.g. Hedgerows) – The scheme will not cause severance within any European Site. All sites located within 5 km are designated for habitats and not for any mobile features. Therefore, severance or barriers are not likely to affect qualifying features at these sites;
- Creatures may be killed trying to cross a road which cuts across their traditional territory or foraging routes - All sites located within 5 km are designated for habitats and not for any mobile features. Therefore, severance or barriers are not likely to affect qualifying features at these sites;
- Disturbance of species – All European Sites within 5km of the scheme are designated for their floral species/habitats only, and none of the qualifying features are sensitive to noise or light disturbance.
- Effects of road lighting - All sites located within 5 km are designated for habitats and/or floral species and are therefore unlikely to be sensitive to impacts from lighting.

4.4 Other Projects and Plans

4.4.1 In-combination effects on the four relevant European Sites have been considered on a site-by-site basis, based on the potential effects identified for each site within the screening matrices. The process for identifying other projects and plans that may lead to in-combination effects is detailed within Section 3.3 above**.**

5 Screening Assessment

5.1 Introduction

5.1.1 A screening assessment has been carried out for the European Sites identified in Section 4.1 above. The assessment is presented in full within the Screening Matrices contained within **Screening Matrices** (Volume 6 Document Reference 6.5 SIAA Appendix 1), and is summarised below.

5.1.2 The four sites considered within the assessment were:

- Newlyn Downs SAC
- Fal and Helford SAC
- River Camel SAC
- Breney Common and Goss and Tregoss Moors SAC

5.1.3 Where relevant, and based on consideration of the nature of the works and the qualifying features of the European Sites, consideration was given to the following impacts with the potential to lead to significant effects:

- Changes in air quality from atmospheric pollution associated with increased traffic (Newlyn Downs SAC, River Camel SAC and Breney Common and Goss and Tregoss Moors SAC);
- Changes in air quality from atmospheric pollution associated with construction activities (Newly Downs SAC);
- Changes in water quality (Fal and Helford SAC and Newlyn Downs SAC);
- Impacts on the management of the site (Newlyn Downs SAC);
- Changes in hydrological conditions (Newlyn Downs SAC); and
- Inappropriate management and introduction of invasive species (Newlyn Downs SAC).

5.1.4 These impacts were identified through consideration of the potential impact pathways of the scheme and the conservation objectives and vulnerabilities of the sites identified, using the professional judgement of experienced and qualified consultant ecologists, and in consultation with NE (the details of the agreed matters are provided in the **Natural England Statement of Common Ground (SOCG)** (Volume 7 Document Ref 7.5).

5.1.5 The following assumptions apply to all four sites considered as part of this screening exercise and therefore have not been considered further:

- No landtake of any of the European Sites is required for the project, therefore there will not be any habitat loss nor habitat fragmentation as a result of the scheme;
- There are no resources required from within the European Sites.

5.2 Stage 1 Screening Matrices

5.2.1 Appendix 1 contains the completed Stage 1 screening matrices for Newlyn Downs SAC, Fal and Helford SAC, Breney Common and Goss and Tregoss Moors SAC, and River Camel SAC, adopting the format set out in PINS Advice Note 10 [26].

5.2.2 The disparate sources of potentially significant effects have been compressed into a number of broad categories in line with the approach recommended in Advice Note 10.

5.3 Conclusions of Stage 1: Screening assessment

5.3.1 The following effects were **excluded** from the assessment for the reasons provided below:

Newlyn Downs SAC (Matrix 1)

- **Habitat degradation** caused by changes in air quality from atmospheric pollution associated with changes in traffic during operation - 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. Predicted NOx levels under the do-something scenario are all considerably below the critical level/limit value of 30µg/m^3, and are either equal to or only marginally higher than under the Do-minimum scenario. Therefore, a LSE can be excluded.
- **Reduced management of the site due to loss of land used to support the management of the European Site** in order to maintain its conservation objectives - The land manager has identified an area for conversion of arable land to grazing land to ensure that cattle can continue to be used to graze the European Site. The land available is viable for conversion and an adequate size and can be secured through agreement. Therefore, a LSE can be excluded.
- **In-combination effects -** An adverse effect resulting from impacts on air quality during operation, either alone or in combination with the scheme, is unlikely to occur as a result of the proposed scheme[18]. An adverse effect resulting from reduced management of the site can be excluded, therefore no in-combination effect is possible in respect of this potential impact. The potential for other impacts to result in an in-combination effect could not be excluded at the screening stage and are therefore addressed at section 5.3.2 below.

Fal and Helford SAC (Matrix 2)

- **Habitat degradation caused by changes in water quality -** The assessment of effects presented within Chapter 13 Road drainage and the water environment (Volume 6 Document Ref .2) considers effects on those water features within 1 kilometre of the scheme. 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

[18] The potential for in-combination effects resulting from changes in air quality during operation can be excluded as the assessment of the scheme alone concluded that predicted NOx levels are all considerably below the critical level/limit value of 30µg/m3, and the predicted levels were based on the traffic model for a future opening year scenario (2023) which takes into account forecast growth based on a combination of background growth and specific proposed developments. A review of the local plan and major planning applications was undertaken to identify 'large developments' in proximity to the scheme that were considered likely to have a direct impact on future demand on the A30. These were then included at specific locations within the traffic model. Therefore, the predicted NOx levels for the scheme already take into account in-combination effects and have concluded that a likely significant effect can be excluded at the screening stage.

distance of the scheme from the European Site (6.4 kilometres) means that a LSE can be excluded.

- **In-combination effects -** An adverse effect resulting from impacts on water quality is unlikely to occur as a result of the proposed scheme. Therefore, an in-combination effect is unlikely to occur as a result of impacts on water quality.

River Camel SAC (Matrix 3)

- **Habitat degradation resulting from potential changes in air quality as a result of increased traffic flows**. The air quality modelling has predicted that within River Camel SAC, NOx levels in the do-something scenario will range from 5.6 – 23 µg/m3, which is considerably below the critical level/limit value of 30µg/m3.Therefore, a LSE can be excluded at the screening stage.
- **In-combination effects –** Whilst predicted NOx levels represent a slight increase above the Do-minimum, they are all considerably below the critical level/limit value of 30µg/m3. No proposed developments have been identified within 200 metres of the European Site, therefore no in-combination effect is likely to occur and a LSE can be excluded at the screening stage.

5.3.2 Based on information considered at Stage 1 Screening, the following effects could **not be excluded**, and were taken forward to Stage 2: Appropriate Assessment:

Newlyn Downs SAC (Matrix 1)

- **Habitat degradation caused by dust during construction** - Volume 6 Document Ref 6.2 ES Chapter 8 Nature conservation and ecology states that in the case of the Newlyn Downs SAC, where vegetation may be sensitive to elevated levels of airborne dust from the works during construction, best practice control measures will be required to reduce this risk. Therefore, prior to mitigation a LSE cannot be excluded at the screening stage and further assessment is required.
- **Changes in water quality and therefore effects on habitat quality** - 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 and further assessment is required.
- **Changes in hydrology resulting from dewatering** - Further assessment is required to understand the level of hydrological connectivity between the European Site and the scheme. Therefore, a LSE due to impacts on groundwater hydrology during construction and operation cannot be excluded at the screening stage and further assessment is required.
- **Introduction of invasive species -** Invasive species have been recorded near the scheme, and standard practice construction techniques would be needed to control the spread of such species where present during the construction phase. As an impact cannot be ruled out without mitigation in place, uncertainty remains and a LSE due to introduction of invasive species cannot be excluded at the screening stage and further assessment is required.
- **In-combination effects –** As the aforementioned impacts could not be screened out at the screening stage, then the potential for LSE both alone and

in-combination with other plans and projects remains a possibility, and further assessment is required.

Breney Common and Goss and Tregoss Moors SAC (Matrix 4)

- **Habitat degradation resulting from potential changes in air quality as a result of increased traffic flows** - The threshold for excluding a significant effect is exceeded at Breney Common and Goss and Tregoss Moors SAC. For the Breney Common and Goss and Tregoss Moors SAC, exceedances of both the vegetation criterion (30 µg/m3) and the 1% threshold (0.3µg/m3) were predicted to occur between 0-10 metres from the highway boundary. Therefore, a significant effect could not be excluded at the screening stage and further assessment is required.
- **In-combination effects –** as a potential adverse effect resulting from changes in air quality was identified as requiring further assessment, in-combination effects were also taken forward for consideration as part of the Stage 2: Appropriate Assessment.

6 Mitigation

6.1.1 The assumed (plainly established and uncontroversial) mitigation measures incorporated into the scheme, and considered within this report to inform an appropriate assessment, are set out below in relation to the potential adverse effects on European Sites.

6.1.2 During construction and operation of the scheme, environmental good practice measures would be implemented and the assessment has been undertaken based on the implementation of these measures, particularly during construction. Adherence to these measures will be secured through the DCO.

6.1.3 The environmental performance of the contractor throughout the construction works would be in accordance with the Outline Construction Environmental Management Plan (CEMP) (Volume 6 Document Ref 6.4 ES Appendix 16.1 Outline CEMP). Environmental management plans are submitted in draft as part of the draft DCO submission, and they are to be secured under requirements 3, 5, 8, and 13 in the Draft DCO, which will ensure that they finalised prior to any construction works and would detail impacts, mitigation and monitoring. The plans would also detail the party responsible for implementation and timing of mitigation and monitoring.

6.1.4 An environmental clerk of works (ECW) would be employed for the duration of construction of the scheme and for pre-clearance works to ensure that measures to avoid or alleviate impacts on nature conservation receptors were implemented.

6.1.5 All environmental mitigation is outlined within the **Outline CEMP** (Volume 6 Document Ref 6.4 ES Appendix 16.1), which is secured by Requirement 3 in the draft DCO.

6.1.6 The **Outline CEMP** (Volume 6 Document Ref 6.4 ES Appendix 16.1), provides an initial draft of the detailed CEMP. It has been produced at an appropriate level of detail for the Preliminary Design stage (Highways England's PCF Stage 3) and to accompany the DCO application for the scheme.

6.1.7 The predicted environmental effects of the scheme identified in the ES and the related actions and mitigation measures are scheduled in the Register of Environmental Actions and Commitments (REAC) (contained in **Outline CEMP** (Volume 6 Document Ref 6.4 Appendix 16.1), which has formed the basis for developing the outline CEMP.

6.1.8 The main purpose of the outline CEMP is to provide details of how the environmental effects of the scheme would be managed during the construction phase by:

- Ensuring all identified actions and mitigation measures contained in the REAC are implemented;
- Ensuring the relevant DCO Requirements are met; and
- Ensuring compliance with environmental legislation.

6.1.9 The outline CEMP will be developed into a fully detailed final CEMP once the detailed design and construction plans have been finalised. The CEMP is a live document and will be maintained throughout the construction phase.

6.1.10 The CEMP will form part of a suite of documents used to manage the construction of the scheme. The CEMP will be managed alongside standard and site-specific environmental management plans and systems.

6.1.11 Upon completion of construction, the CEMP will be used to form the Handover Environmental Management Plan (HEMP).

6.1.12 Measures to minimise impacts have been identified as being of relevance to the following potential impacts that could affect European Sites resulting from the scheme:

- Potential impacts on air quality during construction
- Potential impacts on water quality during construction
- Inappropriate management and introduction of invasive species

6.1.13 An outline of the measures identified to address these potential impacts is provided below.

6.2 Potential impacts on air quality during construction

6.2.1 Best practice mitigation measures will be implemented through an Air Quality Management Plan, as outlined in the **Outline CEMP** (Volume 6 Document Ref 6.4 ES Appendix 16.1). This includes the following requirements:

- The main contractors will plan the site layout to locate machinery and dust-causing activities away from sensitive receptors, where reasonably practicable
- The main contractors will also use appropriate methods, such as the erection of hoardings or other barriers along the site boundary, where appropriate, to mitigate the spread of dust to any sensitive buildings or other environmental receptors
- Measures will be implemented by the main contractors to limit emissions during construction, as set out in **Outline CEMP Annex 2 Section 17.14-17.20** (Volume 6 Document Reference 6.4 ES Appendix 16.1) in respect of:
  - construction plant and vehicles
  - transportation and storage of materials
  - construction plant and vehicles
  - demolition activities
  - excavations and earthworks activities
  - drilling activities will include the following
  - processing, crushing, cutting and grinding activities
  - Dust screens and barriers will be implemented where required.

6.2.2 These measures will be secured through the completion and agreement of the CEMP which is in turn secured by way of Requirement 3 in the Draft DCO.

6.3 Potential impacts on water quality during construction

6.3.1 Measures to avoid or alleviate adverse effects upon ecological receptors, including European Sites, will include following the Environment Agency Pollution Prevention Guidelines (PPGs) in relation to avoidance of pollution, with particular reference to PPG01 through to PPG06, PPG13, PPG18, PPG22 and PPG23. The works would be carried out under appropriate consents for working near watercourses.

6.3.2 CIRIA Industry guidance would also be followed and in particular:

- CIRIA C692 - Environmental Good Practice on Site (3rd Edition), 2010;
- CIRIA C532 - Control of Water Pollution from Construction Sites, 2001; and
- CIRIA C648 - Control of water pollution from linear construction projects, 2006.

6.3.3 Run-off and uncontrolled pollution events to existing surface drains will be managed using silt traps, bunding of chemical stores and the establishment of settling ponds, lagoons and temporary oil interceptors. This will form part of a construction-phase drainage strategy designed to minimise the risk of uncontrolled pollution events to existing surface and/or ground water. Implementation of the final drainage strategy during the operational phase similarly will minimise the risk of pollution events resulting from the project, and maintain hydrological separation between the A30 and Newlyn Downs SAC. Delivery of the surface and foul water drainage systems is secured by Requirement 13 in the draft DCO.

6.3.4 Other relevant mitigation is set out in Annex G: Ground and Surface Water Management Plan and Annex H: Pollution Prevention and Control Management Plan, of the **Outline CEMP** (Volume 6 Document Reference 6.4 ES Appendix 16.1). The Outline CEMP includes the following requirements:

- Application of standard measures based on the Environment Agency's Pollution Prevention Guidelines (PPGs).
- Additional site-specific measures would include:
  - A surface water management system using measures such as temporary silt fencing, cut off ditches, settlement ponds and bunds set up early in the construction period to capture all runoff and prevent ingress of sediments and contaminants into existing drainage ditches where necessary.
  - Water with a higher risk of contamination which requires discharge, including groundwater pumped out of pilings during concrete pouring, would be contained and treated using appropriate measures such as coagulation of sediments, dewatering and pH neutralisation prior to discharge. There are various proprietary package treatment plants available that can provide these measures.
  - Contaminated water that cannot be treated on site would, if necessary, be pumped to a suitably licenced tanker before being exported off site for treatment at an appropriately permitted facility.
  - Areas of exposed sediment deemed at risk of erosion during heavy rainfall or flood inundation should be protected using either temporary measures (e.g. sheeting) or semi-permanent measures (for example coir matting) until vegetation is able to establish on these surfaces.
  - Works would be suspended during out-of-bank river flows or during intense rainstorms.
  - A water quality monitoring programme prior to and during construction works would be agreed with the EA.

6.3.5 These measures will be secured through the completion and agreement of the CEMP which is in turn secured by way of Requirement 3 in the Draft DCO.

6.3.6 Requirement 8 in the Draft DCO also requires the preparation and submission of a contamination risk assessment to identify risks and remediation in relation to groundwater contamination.

6.4 Inappropriate management and introduction of invasive species

6.4.1 **The Outline CEMP** (Volume 6 Document Reference 6.4 ES Appendix 16.1) has included the following provisions in order to ensure that invasive species are managed appropriately and to control the spread of such species where present during the construction phase:

- Pre-construction survey of all areas within construction footprint to identify the location of any invasive species.
- A Method Statement for preventing the spread of any invasive species should be produced at Detailed Design stage and included within the CEMP. Implementation of these requirements should be undertaken through site set up and provision of Toolbox Talks for all personnel prior to works commencing.
- Environment Agency guidance on control of invasive species would also be followed, including Managing Japanese knotweed on development sites: the knotweed code of practice (Environment Agency 2013).

6.4.2 These measures will be secured through the completion and agreement of the CEMP which is in turn secured by way of Requirement 3 in the Draft DCO.

7 Appropriate Assessment

7.1 Introduction

7.1.1 In the cases of the following European Sites, LSE could not be excluded at the screening stage and further assessment was required to establish if the scheme could have an adverse effect on integrity:

- Newlyn Downs SAC (Matrix 5);
- Breney Common and Goss and Tregoss Moors SAC (Matrix 6).

7.1.2 Where relevant, based on the outcomes of the screening assessment, and as presented at section 5.3.2 above, consideration was given to the following impacts with the potential to lead to significant effects:

Newlyn Downs SAC:

- Changes in air quality from atmospheric pollution associated with construction activities;
- Changes in water quality during construction and operation;
- Changes in hydrological conditions;
- Inappropriate management and introduction of invasive species; and
- In-combination effects.

Breney Common and Goss and Tregoss Moors SAC:

- Changes in air quality from atmospheric pollution associated with increased traffic;
- In-combination effects.

7.2 Stage 2 Integrity Matrices

7.2.1 Appendix 2 to this report contains the completed Stage 2 integrity matrices for Newlyn Down SAC and Breney Common and Goss and Tregoss Moors SAC, adopting the format set out in PINS Advice Note 10.

7.3 Conclusions of Stage 2: Appropriate assessment

7.3.1 A summary of the appropriate assessment, setting out the key issues and conclusions for each European Site, is presented below. All detailed supporting information is included or, where included in other application documents, is referenced within the integrity matrices provided.

Newlyn Downs SAC (Matrix 5):

<u>Changes in air quality from atmospheric pollution associated with construction activities</u>

7.3.2 Air borne pollutants are identified as a threat to the qualifying habitats[19] present at the European Site.

7.3.3 IAQM guidance on the assessment of dust from demolition and construction [15], establishes screening criteria for the assessment of dust on ecological receptors.

19 http://jncc.defra.gov.uk/pdf/Article17Consult_20131010/H4020_UK.pdf

The screening criteria state that an assessment will normally be required where there is an 'ecological receptor' within:

- 50 m of the boundary of the site; or
- 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the site entrance(s).

7.3.4 At its closest point, the European Site is located approximately 35m from the scheme boundary. However, the area of the proposed works located 35m from the site boundary comprises an area of land proposed for heathland restoration with no significant dust generating activities occurring in this area. When excluding the land identified for heathland restoration, the boundary of the proposed scheme would be located approximately 105m from the European Site at its closest point, and the public highway (which would be used by construction vehicles) is located over 100m from the European site (See Figure 1 in Volume 6 Document Ref 6.5 Appendix 2). Therefore, applying the IAQM guidance threshold of 50m, the level of risk to the European Site is defined as being "negligible", meaning that any effects will be not be significant.

7.3.5 As is summarised in 6.2.1 above, Best practice mitigation measures will be implemented through an Air Quality Management Plan, as outlined in the **Outline CEMP** (Volume 6, Document Ref 6.4, ES Appendix 16.1), and secured by Requirement 3 in the **Draft DCO** (Volume 3 Document Reference 3.1).

7.3.6 Based on the distance between the European Site and the site boundary of the proposed development, it can be concluded that the level of risk is negligible and **an adverse effect on the integrity of the European Site can be excluded**.

Changes in water quality during construction and operation

7.3.7 There is one surface water receptor in close proximity to the scheme that flows northwards through the European Site. The watercourse is located at approximate Chainage 12+900, 220m north of the 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.

7.3.8 The ES **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 during construction:

7.3.9 "*The **Outline CEMP** (Volume 6, Document Ref 6.4, ES Appendix 16.1) 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*."

7.3.10 In respect of effects on groundwater quality during construction it states that:

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

7.3.12 The relevant mitigation, as summarised above at 6.3, and set out in Annex G: Ground and Surface Water Management Plan and Annex H: Pollution Prevention and Control Management Plan of the **Outline CEMP** (Volume 6 Document Ref 6.4 ES Appendix 16.1), is secured by Requirement 3 in the Draft DCO.

7.3.13 In terms of potential impacts during operation, The ES **Road Drainage and Water Environment** chapter (Volume 6 Document Ref 6.2 ES Chapter 13) documents the approach to and outcome of the Highways Agency Water Risk Assessment Tool (HAWRAT) 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[20]. The ES **Road Drainage and Water Environment** chapter (Volume 6 Document Ref 6.2 ES Chapter 13) includes the following conclusions in relation to impacts on water quality during operation:

- The levels of treatment embedded in the scheme design (filter drains, detention ponds and grassed swales) are sufficient to reduce pollutants in road drainage discharges to levels acceptable to HAWRAT.
- A long-term impact assessment of surface water runoff from the highway has been undertaken by comparing the annual average concentrations of copper and zinc estimated by the HAWRAT models with the EQSs stated in the WFD (Standards and Classifications) Directions 2015. The predicted concentrations are under the EQS thresholds for both copper and zinc at all discharge locations.
- It is therefore considered that the magnitude of impact of sediment and dissolved metals discharging into surface watercourses is negligible with a significance of effect of neutral.

7.3.14 Based on the distance of the European Site from the scheme, a negligible magnitude of any spillage or pollution event during construction, the proposed drainage system represents an improvement on the existing situation, and both short-term and long-term impacts to surface and groundwater are assessed as neutral, **an adverse effect on the integrity of the European Site due to impacts on water quality can be excluded.**

Changes in hydrological conditions

7.3.15 Only one cutting has been identified as having the potential to lower ground water levels below those within the European Site. This cutting is located approximately 270m to the south of the European Site (ch. 11+200 to 11+700).

7.3.16 The proposed cutting at this location would reduce the ground level to 112.97 – 119.3 mOD (west to east), where the ground water level is located at 117.5 mOD (ch. 11+400) and 120.5mOD (ch 11+500). This could potentially result in drawdown (i.e. lowering of groundwater levels) of between 0.9 and 2.3m.

7.3.17 The European Site is located to the north of the scheme. The topography of the European Site drops away the from 135mOD falling sharply northwards to 115mOD then falling gently northwards to some 70mOD. This means that in some areas of the European Site, ground water levels are likely to be above the reduced groundwater levels required for the cutting. There is therefore the

20 http://www.standardsforhighways.co.uk/ha/standards/dmrb/vol11/section3/hd4509.pdf

potential for groundwater levels with the European Site to be affected, and consequently the potential exists for those qualifying habitats that are water dependent (such as H4020: Temperate Atlantic wet heaths with *Erica ciliaris* and *Erica tetralix*) to be affected.

7.3.18 Groundwater flows are typically controlled by the underlying geology and the area topography.

7.3.19 In terms of topography, the scheme is located to the south of the European Site, downhill of a ridge that runs parallel to the scheme. This ridge forms a watershed (a boundary) between two sub-catchment areas. The scheme is located in one sub-catchment and the European Site is located in another sub-catchment on the other side (to the north) of the ridge.

7.3.20 The geology underlying the scheme and the European Site are different. The scheme is directly underlain by the bedrock of the Grampound Formation, which in the top 2.5-3.5m has been found to be highly weathered. The main groundwater flows are expected to be within this shallow weathered zone, particularly within the weathered metamorphised sandstone (psammite) bands which follow the topography i.e. downhill in the southern direction away from the European Site. The geology changes approximately along the ridge line because of a geological fault that runs parallel to the ridge. The majority of the European Site is located further to the north of the fault, and is underlain by superficial deposits of the Head overlying the bedrock of the Trendrean Formation. These deposits are poorly drained and the water flows would be at surface or at very shallow depth following the topography i.e. downhill in the northern direction away from the scheme. Water infiltration and groundwater recharge would be limited through such deposits. This poor drainage is likely to be reflected in the OS map which shows marshy conditions prevailing across the European Site.

7.3.21 The presence of the ridge forming a watershed and of a geological fault line between the scheme and the European Site, means that the potential for hydraulic connectivity between the two formations is likely to be very low.

7.3.22 The review of the hydrogeological setting of the proposed scheme and the Newlyn Downs SAC site concluded that the bedrock formations underlying both sites are different and unlikely to be in hydraulic continuity. Therefore, the activities associated with the construction of the proposed scheme would not affect the European Site via changing hydrological conditions, and **an adverse effect on the integrity of the European Site can be excluded.**

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

7.3.23 Introduction of invasive species could potentially occur during the construction phase. Construction management measures will be implemented through the Outline CEMP (Doc Ref:) to ensure that invasive species are managed appropriately and to control the spread of such species where present during the construction phase. This will ensure that the extent and distribution of qualifying habitats and species, and the form and function of qualifying habitats is not affected by the spread of invasive species. As such, and in view of the relevant site conservation objectives, **an adverse effect on the integrity of the European Site can be excluded.**

In-combination effects

7.3.24 The closest other project to Newlyn Downs SAC is located approximately 1.9 kilometres south of the European Site (the proposed erection of a 1 x 1.5 Mw wind turbine, transformer, grid connection, access road and ancillary infrastructure planning application reference number PA15/02972).

7.3.25 Given the distance of the European Site to the next nearest development (PA15/02972), and given that the construction phases of PA15/02972 and the A30 scheme will not overlap (PA15/02972 is expected to be completed in 2019), and that the following potential impacts from the A30 scheme have been assessed as neutral or negligible. In-combination effects can therefore be excluded:

- Impacts on surface and groundwater quality during construction
- impacts on water quality during operation
- impacts on water quality from accidental spillage
- impacts resulting from inappropriate management and introduction of invasive species
- impacts on local groundwater levels
- Impacts on air quality arising from construction activities

7.3.26 Air quality modelling has predicted that within Newlyn Downs SAC, NOx levels in the do-something scenario will be equal to, or slightly higher than that of the Do-minimum scenario (despite remaining below the critical level/limit value of 30µg/m3 [3]). Therefore, in-combination effects were considered within 200 metres of the site. No other projects or plans were identified within this 200 metre buffer, and as such, no in-combination effects are predicted with regard to this impact.

7.3.27 Given the scale, nature of impacts and distance of other projects from the European Site it can be concluded that no in-combination effects are likely to occur, and an adverse effect on the integrity of the European Site can be excluded.

Breney Common and Goss and Tregoss Moors SAC (Matrix 6):

Changes in air quality from atmospheric pollution associated with increased traffic

Effects on qualifying habitat/s

7.3.28 Applying the approach set out in DMRB HA 207/07 a comparison of predicted nitrogen deposition against the critical load for the qualifying habitat within the site has been undertaken.

7.3.29 Of the habitats mapped, within 0-10m of the kerbside where exceedances of the critical level have been predicted, only one: 'H4c *Ulex gallii Agrostis curtisii heath, Erica tetralix* sub-community' features on the list of NVC communities that make up the qualifying Annex 1 habitats for the site. This NVC community is identified under the habitat type: European dry heath (4030) . Therefore, for the purpose of assessing the impacts of nitrogen deposition on qualifying habitat, the critical load for European Dry Heath of 10-20 kg N ha^{-1} yr^{-1} has been applied.

7.3.30 Predicted increases in nitrogen deposition under the do-something when compared with the Do-minimum are small, ranging from between 0.01 - 0.13 kg N

ha/yr. Within 1-10m of the kerbside, this equates to an increase of 1.2-1.3% of the lower limit of the critical load, or 0.8-0.9% of the higher limit of the critical load.

7.3.31 In the case of European Dry Heaths, it is recommended that the high end of the range of the critical load is applied in areas that experience high precipitation[21]. Cornwall receives comparatively high levels of precipitation, and it is therefore considered appropriate to apply the upper limit of 20 kg N ha^{-1} yr^{-1} for the critical load in this case. Applying this upper limit, it could be concluded that the highest predicted increase in Nitrogen Deposition with the scheme in place of 0.13 kg N ha^{-1} yr^{-1}, is considerably below 1% of the upper limit of critical load, and would therefore comprise an 'imperceptible impact'.

7.3.32 That said, and adopting a precautionary approach, further consideration has been given to the effect of nitrogen deposition on the qualifying habitat within 0-10m of the roadside.

7.3.33 Just 0.2% of the total recorded habitat type within the European Site is within the zone that exhibits exceedances of greater than 1% of critical load. No direct loss of qualifying habitat will occur and there will be no change to the distribution of such habitats. The area affected by these small increases in nitrogen deposition is already exceeding the lower limit of the critical load under the baseline conditions, and the predicted increase will not raise levels above the upper limit for the habitat in question. Therefore, applying professional judgement, it is concluded that any increases would not have a discernible degradational effect, and the structure and function (including typical species) of qualifying habitats is unlikely to be affected. As such, and in view of the relevant site conservation objectives, ***an adverse effect on the integrity of the European Site can be excluded***.

Effects on qualifying species

7.3.34 Marsh fritillary is an Annex II species listed as a primary reason for the site's designation. It is therefore necessary to establish whether the habitat located within the area of exceedances of the critical load for nitrogen deposition, play a role in supporting the Marsh Fritillary, and what impact of any habitat degradation is likely to have on the Marsh fritillary population.

7.3.35 Natural England have provided NVC Habitat Mapping for the Mid Cornwall Moors SSSI which is designated in part for its population of Marsh Fritillary. The mapping identifies the extent of, and the NVC habitats that make up, the primary and secondary habitat that supports the Mid Cornwall Moors (and therefore the Population of the Breney Common and Goss and Tregoss Moors SAC) Marsh fritillary populations.

7.3.36 Within 0-10m of the roadside, where exceedances of the critical level have been predicted, the following areas of supporting habitat for the Marsh Fritillary have been identified:

- 0.07 Ha of primary habitat, comprising NVC communities M23 and M25 (with a Critical Load of 15 – 25 kg N/ha/yr), amounting to 0.05% of the total of this type of habitat available within the functional habitat zone for the species at this location; and

21 http://www.apis.ac.uk/srcl/select-a-feature?site=UK0030098&SiteType=SAC&submit=Next

- 0.04 Ha of secondary habitat, comprising NVC community MG10 (with a Critical Load of 10-15 kg N/ha/yr), amounting to 0.16% of the total of this type of habitat available within the functional habitat zone for the species at this location.

7.3.37 Predicted nitrogen deposition levels under the Do-something (2023) scenario range from between 17.2 – 19.3 kg N ha^{-1} yr^{-1}. Therefore, the lower limit of the critical load for all supporting habitats within 10m of the kerbside is exceeded, and further consideration is required as to the magnitude of change in deposition levels and what effects this could have.

7.3.38 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 critical load.

7.3.39 In this case the small increases in nitrogen deposition (0.12-0.13 kg N ha^{-1} yr^{-1}) do not exceed 1% of the critical load for the primary supporting habitats (NVC M23 and M25) present in the affected area. Therefore, the impact on the primary habitat is assessed as being imperceptible, and no adverse effect is expected to occur.

7.3.40 However, increases in deposition rates do exceed 1% of the lower limit of the critical load for the secondary supporting habitat present in the affected area. That said, the increase is comfortably within 1% of the upper limit of the critical load and the area in question already exceeds the lower and upper limit of the critical load under the baseline scenario.

7.3.41 Any impact will only affect a small area of secondary supporting habitat, comprising just 0.16% of the total of this type of habitat available for the Marsh Fritillary population in this area. The small increases in nitrogen are unlikely to result in direct loss of supporting habitat and there will be no change to the distribution of such habitats.

7.3.42 Applying professional judgement, it is concluded that any increases would not have a discernible degradational effect on the habitat supporting the Marsh Fritillary, and the structure and function of qualifying species population is unlikely to be affected. As such, and in view of the relevant site conservation objectives, **an adverse effect on the integrity of the European Site can be excluded**.

<u>In-combination effects</u>

7.3.43 The only potential effect from the scheme on this European Site is from changes in air quality resulting from the scheme during operation. The calculations for NOx and Nitrogen deposition provided above in the consideration of air quality impacts during operation, are based on a traffic model that already takes into account forecast growth based on a combination of background growth and specific proposed developments. No additional sources of substantial nitrogen emissions have been identified within 200m of the European Site, and therefore no development has been identified which could give rise to emissions of NOx which would be expected to result in in combination effects. As such, **an adverse effect on the integrity of the European Site can be excluded.**

8 Proposals for Monitoring and Reporting

8.1.1 As all potential LSE have been excluded from the assessment, there is no requirement to monitor environmental conditions during construction or operation as they relate to HRA matters.

8.1.2 Nonetheless, the **Outline CEMP** (Volume 6 Document Ref 6.4 ES Appendix 16.1) commits to 36-month environmental aftercare maintenance and monitoring period, and prescribes a number of measures within specific environmental management plans to ensure that mitigation is fully implemented and that environmental impacts are monitored. Those relevant to the impacts considered in the HRA include:

Ground and Surface Water Management Plan

8.1.3 The Ground and Surface Water Management Plan (GSWMP) shall define the nature and approach for groundwater management following its abstraction, including monitoring to determine the acceptability of chemical and physical quality with respect to discharge to the surface water system.

8.1.4 Specific monitoring requirements will be detailed. Nominated staff will carry out regular site inspections to control measures are in place and adhered to during the works.

8.1.5 Any instances of pollution or spill will be reported immediately to the Environmental Co-ordinator who will investigate and communicate investigation's conclusions to the project team to aid continuous improvement and to prevent reoccurrence of the event.

8.1.6 Records will be produced to show compliance with the Pollution Control and Prevention Plan, including inspections records, site plans and progress reports

8.1.7 Surface water monitoring will be undertaken to demonstrate no adverse effects on water quality during construction works. An appropriate monitoring schedule and programme will be agreed with NE.

Air Quality Management Plan

8.1.8 The main contractors will manage dust, air pollution, odour and exhaust emissions in accordance with best practicable means (BPM), which include dust and air pollution monitoring measures to be employed during construction of the project.

8.1.9 The main contractors will implement inspection and monitoring procedures to assess the effectiveness of measures to prevent dust and air pollutant emissions. Relevant local authorities will be consulted regarding the monitoring procedures to be implemented which will include the following measures, as appropriate:

- Site inspections covering the establishment of operation of the construction site.
- Inspection procedures for areas adjacent to the construction site to visually assess any dust and air pollution which may be generated.
- Reference to inspection and maintenance schedules for construction vehicles, plant and machinery.
- Inspection procedures relating to the level of trafficking, use and condition of haul routes.

Invasive Species Management Plan

8.1.10 Weekly Safety, Health and Environment (SHE) walks and monthly SHE inspections shall be conducted where the general management techniques shall be reviewed.

8.2 Roles and Responsibilities

8.2.1 The Outline CEMP sets out a number of roles and responsibilities to ensure that the prescribed programme of monitoring is fully implemented. These include:

8.2.2 **The Environmental Co-ordinator** (ECO) would be responsible for the interface between the environmental specialists and engineers. The ECO would have primary responsibility for managing environmental issues through the construction and post-construction monitoring phases and for obtaining relevant licences and consents. Their specific tasks would include:

- Ensuring environmental quality standards are adhered to and monitoring compliance during detailed design and construction phases of the new section of motorway.
- Periodically, provide review reports, including monitoring data where appropriate, to consultees. These reports would demonstrate compliance with the CEMP and would provide assurance that a high standard of environmental protection is being maintained as well as identifying the implications of failure to meet standards of mitigation, the reasons for this and remedial actions to be taken.
- Providing monthly reports on site environmental monitoring.

8.2.3 **The Site Environmental Manager** would report on environmental activities to the ECO and ECOW and responsibilities would include:

- Implementing and maintaining environmental controls on site, including water protection measures and environmental fencing.
- Attending to any spills or environmental incidents that may occur on site.
- Reporting any activity that has resulted in, or has the potential to result in, an environmental impact immediately to the site environmental representative, ECOW or ECO.
- Monitoring and completing the waste register and ensuring the correct waste management procedures are implemented.
- Carrying out regular monitoring and inspection of the works.

8.2.4 A team of **environmental specialists** would provide support as required. During construction their role would be to undertake the required Watching Briefs and to assist the team with specific issues as they arise.

9 Consultation

9.1.1 The **Consultation Report** (Volume 5 Document Ref 5.1) provides a detailed account of pre-application consultation activities carried out by Highways England prior to submission of the DCO application. It demonstrates that Highways England has complied with statutory requirements and details how relevant responses received were taken into account prior to the application for consent.

9.1.2 Written consultation with Natural England as a Statutory Environmental Body (SEB) was undertaken in 2017 and 2018 to meet the requirements of the Planning Act 2008 [8]. This was carried out as part of a broad consultation exercise on the scheme with all relevant statutory consultees, which is detailed within the **Consultation Report** and **Consultation Report Appendices** (Volume 5 Document Refs 5.1 and 5.2). In addition to the statutory consultation outlined above, DMRB states that "Consultation with the Overseeing Organisations will always be necessary to decide on specific requirements in applying the guidance." [1]

9.1.3 The approach, broad content and conclusions set out in this report have been agreed with NE. Full details of the consultation undertaken with Natural England can be found within the **Natural England Statement of Common Ground (SOCG)** (Volume 7 Document Ref 7.5). Consultation relevant to this HRA and to the AIES is detailed in Table 9-1

Table 9-1 Summary of HRA and AIES consultation with Natural England carried out to date.

Date	Method	Consultation Details
18/10/2017	Email	Arup to Natural England – Detailing input required from Natural England, which included consultation on the approach and results of the HRA.
04/12/2017	Email	Arup to Natural England – Found previous consultation showing that Natural England had considered that the heathland area adjacent to the quarry pond was of the same value as the European Site, which is in conflict with the AIES which states that this heathland area is not considered to be 'functionally linked' to the European Site. Natural England to Arup – Requesting survey data on the heathland area. Arup to Natural England – Giving details on the NVC survey on the heathland area.
06/12/2017	Email	Natural England to Arup – Agreeing that the heathland area is not of SAC quality or functionally linked to Newlyn Downs, and that the conclusion within the AIES remain accurate. Natural England requested the area of the site, emphasising that it was important to replace the lost heathland aiming for no net loss and potential net-gain. Arup to Natural England – Stating that current plans are to link habitat to connected habitat with the heathland at Newlyn Downs SAC, thus providing connectivity to a presently isolated area of heathland and providing 2:1 heathland creation to loss ratio.
28/02/2018	Email	Natural England to Arup – Querying what input Arup require on HRA methodology.

Date	Method	Consultation Details
29/03/2018	Email	Arup to Natural England – Querying what Natural England wish to see relating to air quality and how this will inform the HRA.
04/04/2018	Email	Arup summarising outstanding queries under DAS contract which included advice on the HRA and air quality impacts.
10/04/2018	Email	Arup to Natural England – Expressing that based on recent consultation there is the potential that more sites in addition to Newlyn Downs SAC may need to be considered relating to air quality criteria.
16/04/2018	Email and attached advice	Natural England to Arup – Attaching advice specific to the approach to the HRA of road traffic emissions on the A30 (produced by Natural England). This included the potential differences between DMRB and Natural England significance screening for road schemes. This advice states that designated sites within 200m of the edge of the road should be screened for significance. Goss Moor SAC is within 200m of the edge of the road network (not within 200m of the scheme) but may still be subject to adverse air quality impacts due to the increase in traffic on the road network at this point, triggered by the proposed scheme.
25/04/2018	Email	Arup request clarity on difference between DMRB and NE guidance in Air Quality assessment.
02/05/2018	Email	Natural England clarified differences in guidance. NE guidance differed from DMRB in certain situations where NE's own investigations have highlighted potential issues with the DMRB methodology. One of those situations is a change of less than 200 HDVs for single and dual carriageway roads. DMRB would screen that scenario out as insignificant change, but NE investigations have shown that is not necessarily the case and it may lead to a significant change i.e. >1% of Critical Level. NE require further assessment where change in AADT for HDVs is <200 in this instance.
22/05/2018	Phone Call and email summary following	Call between Arup and NE - discussions on HRA and set up of meeting to finalise SoCG. Arup described current position with HRA and methodologies/assessments applied to determine potential effects. NE in theory agree with approach but requested further details to discuss in meeting. Agree meeting date 06/06/2018 to discuss matters above, mitigation measures and SoCG. Email that followed highlighted topics to be discussed in the agreed meeting and what Arup was to provide ahead of meeting, being: 1. the Draft SoCG, 2. Outline to HRA approach, and 3. Information to inform on mitigation, at least a week ahead of meeting – being 30th May. The email also confirmed that no other designated site is predicted to have an increase on HGVs on the Affected Roads Network as a result of scheme.
29/05/2018	Email	Natural England agreed with the rationale and methodology relating to air quality, and in relation to assessing designated sites where the 200 HDV threshold is either exceeded (and thus being considered) or have a predicted reduction or no change in HDV.
04/06/2018	Meeting	The recent court ruling in respect to HRA (European [April 2018] C323/17, People Over Wind, Peter Sweetman v Coillte Teoranta)

Date	Method	Consultation Details
		that screening should not take account of the measures intended to avoid or reduce the harmful effects of the plan or project on that site. As such, construction mitigation will not be considered at screening, thus Newlyn Downs SAC will be screened in to appropriate assessment (for construction mitigation and possible hydrological and sediment effects). Breney Common and Goss and Tregoss Moors SAC will be screened in to appropriate assessment based on potential effects relating to air quality on the affected road network.
06/06/2018	Email	Arup to Natural England – Attaching 04/06/2018 meeting minutes and summarising actions for NE which include: NE to send Arup the ecological survey information and associated citations for the Mid-Cornwall Moors SSSI, which includes more up-to-date NVC results for the Breney Common and Goss and Tregoss Moors SAC; and, NE to provide information and a decision relating to the partial loss of the cattle grazing field due to the scheme.
19/06/2018	Email	Natural England to Arup – Attaching map of supplementary cattle grazing field adjacent to Newlyn Downs SAC, and the Part 3 HLS – Management of environmental features relating to this grazing field. Natural England confirmed in this email that the area lost to the scheme would significantly affect the ability of the agreement holder to manage the SAC, resulting in a negative impact on the European Sites designation. Natural England to Arup – Attaching maps displaying up to date NVC data for Goss and Tregoss Moor, and a location map for Mid Cornwall Moors SSSI. Natural England to Arup – Attaching Mid Cornwall Moors SSSI supporting information document, notification document, and least favourable condition tables.
20/06/2018	Email	Natural England to Arup – Attaching site unit maps for Mid-Cornwall Moors SSSI Natural England to Arup – Attaching marsh fritillary distribution and habitat map, and NVC survey data commissioned by Natural England and non-NVC data submitted by Highways England to inform the Mid Cornwall Moors SSSI designation.
25/06/2018	Email	Natural England to Arup – Expressing that in Natural England's view, the DMRB methodology relating to air quality screening (i.e. <200 HDV vehicles or <10kmh average speed increase) [10] is not sufficient to be compliant with Habitat Regulations Assessment and does not follow the methodology Natural England recommend for air quality assessment on roads. However, Natural England also state that they likely agree with the ultimate conclusions of the HRA, and it is their understanding that none of those designated sites screened out as no LSE have been done so based in part on the two DMRB criteria that Natural England believe may not be sufficiently precautionary (ie <200 HDV vehicles or <10kmh average speed increase), and this should be stated in the assessment document. The assessment should acknowledge the advice Natural England have already provided regarding certain DMRB criteria not being sufficiently precautionary to be compliant with Habitat Regulations Assessment in certain situations based on Natural England's evidence. Furthermore, Natural England request that Arup ground truth findings from aerial photography around Breney Common and Goss and Tregoss Moors SAC.

Date	Method	Consultation Details
26/06/2018	Email	Arup to Natural England – Requesting GIS shapefiles for the Mid Cornwall Moors SSSI NVC survey, and a Marsh Fritillary distribution map to inform the HRA.
26/06/2018	Email	Arup to Natural England – Stating that all other designated sites within 200m of the network are predicted to stay similar or reduce in HDVs, and as such, if the assessment were to utilise Natural England's <200 HDV figure (wherever that is set), the assessment would remain the same. Also expressing that it may be difficult to do a ground truthing exercise in time for DCO submission, but it may be something that can be obtained for examination.
28/06/2018	Email	Natural England to Arup – Attaching GIS shapefiles of the Mid-Cornwall Moors SSSI NVC data.
07/08/2018	Letter	Responding to a final draft SIAA issued to Natural England by Highways England on July 23rd 2018, NE state that they concur with the assessment conclusions, providing that all mitigation measures are appropriately secured in any permission given.

9.1.4 Copies of this correspondence are contained within Key Correspondence with Natural England relating to the HRA (Volume 6 Document Ref 6.5 Appendix 8). This report has addressed all comments from Natural England received through consultation responses.

10 Conclusion

10.1.1 The scheme is not connected with or necessary to the management of any European Sites.

10.1.2 Applying the relevant thresholds from guidance set out in DMRB, the following European Sites were identified for consideration as part of the HRA screening process:

- Newlyn Downs SAC
- Fal and Helford SAC
- Breney Common and Goss and Tregoss Moors SAC
- River Camel SAC

10.1.3 Based on consideration of the nature of the works and the qualifying features of the European Sites, consideration was given to the following impacts with the potential to lead to significant effects:

- Changes in air quality from atmospheric pollution associated with increased traffic (Newlyn Downs SAC, River Camel SAC and Breney Common and Goss and Tregoss Moors SAC);
- Changes in air quality from atmospheric pollution associated with construction activities (Newly Downs SAC);
- Changes in water quality (Fal and Helford SAC and Newlyn Downs SAC);
- Impacts on the management of the site (Newlyn Downs SAC);
- Changes in hydrological conditions (Newlyn Downs SAC); and
- Inappropriate management and introduction of invasive species (Newlyn Downs SAC).

10.1.4 Any Likely Significant Effect on the interest features of the sites, either alone or in-combination with other plans/projects, was excluded at Stage 1: Screening, for the following European Sites:

- Fal and Helford SAC; and
- River Camel SAC

10.1.5 In the case of Newlyn Downs SAC, the potential for LSE resulting from changes in air quality during operation and reduced management of the site due to loss of land used to support the management of the European Site, were excluded at Stage 1: Screening. The remaining impacts were taken forward for further consideration as part of Stage 2: Appropriate Assessment, as follows:

- Changes in air quality from atmospheric pollution associated with construction activities;
- Changes in water quality during construction and operation;
- Changes in hydrological conditions;
- Inappropriate management and introduction of invasive species; and
- In-combination effects.

10.1.6 The potential for adverse effects on integrity of the Breney Common and Goss and Tregoss Moors SAC resulting from changes in air quality during operation, was also taken forward for further consideration as part of Stage 2: Appropriate Assessment.

10.1.7 Subsequent to a full and proportionate assessment at Stage 2: Appropriate Assessment, and in view of the relevant site conservation objectives, the potential for any adverse effect on the integrity of the Newlyn Downs and Breney Common and Goss and Tregoss Moors SACs was excluded.

10.1.8 The HRA process at Stage 2: Appropriate Assessment, has concluded that no reasonable scientific doubt remains and in 'the light of the best scientific knowledge in the field', the project will not adversely affect the integrity of any European Site, alone or in combination with other plans or projects.

10.1.9 Therefore, the HRA can be concluded at Stage 2: Appropriate Assessment, and there is no requirement to move to HRA Stages 3 and 4 for the purposes of compliance the Conservation of Habitats and Species Regulations 2017 (as amended).

Glossary

Glossary Term	Description
Affected Road Network (ARN)	Defined in Design Manual for Roads and Bridges Volume 11, Section 3, Part 1 Air Quality (DMRB HA207/07) (Highways Agency et al., 2007) as those roads within the traffic reliability area which in the scheme opening year meet specific criteria set out in the DMRB HA207/07.
Air Quality Plan	Documents setting out the UK's plan for reducing roadside nitrogen dioxide concentrations.
Assessment of Implications of European Sites (AIES)	Also known as Habitats Regulations Assessment (HRA). An assessment of the implications of highway construction or improvement projects on 'European Sites' where such sites are designated for their nature conservation interest.
Controlled waters	These are fully defined in Section 104 of the Water Resources Act 1991. They include in summary: 1. Relevant territorial waters which extend seaward for three miles from the low-tide limit from which the territorial sea adjacent to England and Wales is measured. 2. Coastal waters from the low-tide limit to the high-tide limit or fresh-water limit of a river or watercourse. 3. Inland freshwaters: • Natural and artificial lakes, ponds, reservoirs, rivers or watercourses above the fresh-water limit • Natural and artificial underground rivers and watercourses • Surface water sewers, ditches and soakaways that discharge to surface or groundwater • It also includes those that may be currently dry. 4. Groundwaters– any waters contained in underground strata.
Definitive Map (PC)	A definitive map is a map prepared by a surveying authority which is a legal record of the public's rights of way in one of four categories (footpath, bridleway, restricted byway or byway open to all traffic). If a way is shown on the map, then that is legal, or conclusive, evidence that the public had those rights along the way at the relevant date of the map (and has them still, unless there has been a legally authorised change). But the reverse is not true. So the showing of a way as a footpath does not prove that there are not, for example, additional unrecorded rights for horse-riders to use the way. Nor is the fact that a way is omitted from the definitive map proof that the public has no rights over it.[22]
Department of Environment and Rural Affairs (DEFRA)	UK government department responsible for safeguarding the natural environment, supporting the food and farming industry, and sustaining a thriving rural economy.
Designated Environmentally Sensitive Sites	The Environmentally Sensitive Areas were introduced in 1987 to offer incentives to encourage farmers to adopt agricultural practices which would safeguard and enhance parts of the country of particularly high landscape, wildlife or historic value. The scheme has now closed to new applicants. Defra introduced a new Environmental Stewardship Scheme on 3 March 2005 which supersedes (with enhancements) the Environmentally Sensitive

22 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/414670/definitive-map-guide.pdf

Glossary Term	Description
	Areas and Countryside Stewardship Schemes. There are 22 ESAs in England, covering some 10% of agricultural land.[23]
Designer	The organisation commissioned to undertake the various stages of scheme preparation and supervision of construction. This includes specialist subconsultants brought in to advise on specific areas of assessment and mitigation.
Design speed	The design speed is a tool used to determine geometric features of a new road design based on the anticipated vehicle speeds on the road.
Detailed assessment	Method applied to gain an in-depth appreciation of the beneficial and adverse consequences of the project and to inform project decisions. Detailed Assessments are likely to require detailed field surveys and/or quantified modelling techniques.
Development Consent Order (DCO)	A Development Consent Order is the means of obtaining permission for developments categorised as Nationally Significant Infrastructure Projects. This includes energy, transport, water and waste projects.
Do-Minimum	The 'Do-Minimum' forecast scenario in the Opening / Design Year is the base road and traffic network against which alternative improvements can be assessed. In many cases, the definition of the 'Do- Minimum' is straightforward; it is simply the 'Do- Nothing' scenario. However, one or more of the following four cases may arise, in which the 'Do-Minimum' differs from the 'Do-Nothing': i. The case where works will be carried out regardless of whether or not the 'Do- Something' scheme is built. ii. The case where the existing network may be improved to form a 'Do-Minimum scheme which can be tested as an alternative to carrying out major Do-Something improvements. iii. The case where traffic conditions can be improved without significant capital expenditure. iv. The case where the area covered by the modelled network includes road proposals other than the one under immediate consideration.
Do-Nothing	The Do Nothing forecasting scenario is simply the existing network without modification in the Opening / Design Year.
Do-Something	The 'Do-Something' forecast scenario is the road proposal under consideration in the Opening /Design Year.
Environment Agency	The Environment Agency is responsible for environmental protection and regulation in England and plays a central role in implementing the government's environmental strategy. The Environment Agency is the main body responsible for managing the regulation of major industry and waste, treatment of contaminated land, waterquality and resources, fisheries, inland river, estuary and harbour navigations, and conservation and ecology. They are also responsible for managing the risk of flooding from main rivers, reservoirs, estuaries and the sea.
Environment Agency Recorded Pollution Incidents	A record of pollution incidents to water, land and air held by the Environment Agency
Environmental Management Plan	An Environmental Management Plan (EMP) provides the framework for recording environmental risks, commitments and other environmental constraints and clearly identifies the structures

[23] https://data.gov.uk/dataset/a5b0ccc4-a144-4027-91fa-49084ff07da2/environmentally-sensitive-areas-england

Glossary Term	Description
	and processes that will be used to manage and control these aspects. The EMP also seeks to ensure compliance with relevant environmental legislation, government policy objectives and scheme specific environmental objectives. It also provides the mechanism for monitoring, reviewing and auditing environmental performance and compliance.
Flood Risk Assessment	An assessment of the likelihood of flooding in a particular area so that development needs and mitigation measures can be carefully considered.
HDVs	Heavy Duty Vehicles. As HGVs with the inclusion of buses and coaches.
HGVs	Heavy Goods Vehicles, over 3.5 tonnes and includes rigid and articulate lorries.
Historic England	The public body that looks after England's historic environment. Championing historic places and helping people understand their value and care for them.
Listed Building	A building which is considered by the Secretary of State (for Culture, Media and Sport) to be of special architectural or historic interest in accordance with the regime set out in the Town and Country Planning (Listed Buildings and Conservation Areas) Act 1990.
Local Authorities	An administrative body in local government
Local Authority Pollution Prevention Controls	Local authorities who regulate businesses are usually district or borough councils. If an area has only one council (a unitary council) then that's the regulator. The Port Health Authority may be the regulator in port areas. This guidance helps local authorities: • follow statutory guidance under regulation 64 of the Environmental Permitting Regulations (EPR) • understand the EPR's main functions, procedures and terminology[24]
Lowest Observed Adverse Effect Level (LOAEL)	This the level of noise above which adverse effects on health and quality of life can be detected.
National Air Quality Strategy (NAQS)	The Air Quality Strategy intends to provide a clear framework for improving air quality through
National Cycle Network (NCN)	The National Cycle Network is a series of safe, traffic-free paths and quiet on-road cycling and walking routes that connect to every major town and city.
National Parks (NP)	Protected areas because of their beautiful countryside, wildlife and cultural heritage.
National Planning Policy Framework (NPPF)	The National Planning Policy Framework sets out the Government's planning policies for England.
National Pond Survey	This is a national scheme to develop a classification of ponds in Britain based on the composition of their plant and macroinvertebrate communities
Natural England	Natural England are responsible for: • Helping land managers and farmers protect wildlife and landscapes. • Advising on the protection of the marine environment in inshore waters (0 to 12 nautical miles). • Improving public access to the coastline. • Managing 140 National Nature Reserves and supporting National Trails.

[24] https://www.gov.uk/government/publications/local-authority-pollution-control-general-guidance-manual

Glossary Term	Description
	• Providing planning advice and wildlife licences through the planning system. • Managing programmes that help restore or recreate wildlife habitats. • Conserving and enhancing the landscape. • Providing evidence to help make decisions affecting the natural environment.
Nature Conservancy	The Nature Conservancy is the leading conservation organization working around the world to protect ecologically important lands and waters for nature and people.[25]
Noise Important Areas	These areas provide a framework for the local management of the Important Areas
Nationally Significant Infrastructure Projects (NSIP)	Any infrastructure project that is deemed, according to the criteria set in the Planning Act, 2008 (as amended) to be nationally significant. Such projects are authorised through a statutory process that requires an application for a DCO, rather than a conventional planning application or the traditional model through the publication of Statutory Orders and the holding of Public Inquiries.
NOx	Oxides of Nitrogen – which encompasses all nitrogen species although mainly NO and NO2.
Outline Construction Environmental Management Plan	A CEMP at outline stage which will later be refined and expanded into a full CEMP as more information becomes available and there is more certainty in terms of the proposed layout, construction methods, programme and the likely environmental effects.
Materials Management Plan	A materials management plan (MMP) is a mechanism by which those who are developing a site can comply with Environment Agency regulations for excavated ground materials[26]
National Planning Policy Framework	A statement of central government guidance on planning policy, replacing the previous system of topic-specific Planning Policy Guidance Notes (PPGs) and Planning Policy Statements (PPSs).
Paris Agreement (Climate)	The Paris Agreement, Paris climate accord or Paris climate agreement, is an agreement within the United Nations Framework Convention on Climate Change dealing with greenhouse gas emissions mitigation, adaptation and finance starting in the year 2020.
Parish Councils	A parish council is a civil local authority found in England and is the lowest tier of local government. They are elected corporate bodies, have variable tax raising powers, and are responsible for areas known as civil parishes, serving in total 16 million people.
Planning Inspectorate (PINS)	On 1 April 2012, under the Localism Act 2011, the Planning Inspectorate became the agency responsible for operating the planning process for nationally significant infrastructure projects (NSIPs).
PM10	PM10 Particulate matter with a diameter of 10 microns or less
Pollution Prevention Guidelines	Practical advice and guidance for the prevention of pollution during construction and demolition projects. The guidance explains what is required by law and describes good practice measures to reduce the risks of a pollution incident.
Public Rights of Ways	A way over which the public have a right to pass and repass. The route may be used on foot, on (or leading) a horse, on a pedal cycle or with a motor vehicle, depending on its status. Although the

25 https://www.nature.org/about-us/index.htm

26 https://www.designingbuildings.co.uk/wiki/Materials_Management_Plan_(MMP)

Glossary Term	Description
	land may be owned by a private individual, the public may still gain access across that land along a specific route.
Road Investment Strategy (RIS)	The Road Investment Strategy outlines a long-term programme for England's motorways and major roads supported by stable funding needed to plan ahead.
Scheduled Monument	A scheduled monument is a historic building or site that is included in the Schedule of Monuments kept by the Secretary of State for Culture, Media and Sport under the regime set out in the Ancient Monuments and Archaeological Areas Act 1979.
Scheme Assessment Report	The main aims of the assessment reporting process are to permit consideration of the likely environmental, economic and traffic effects of alternative proposals, and to allow the public and statutory bodies to comment on proposals taking account of their environmental, economic and traffic implications.[27]
Scoping Opinion	A written opinion of the relevant consenting authority, following a request from the applicant, as to the information to be provided in the Environmental Statement.
Settlement Profiles (PC)	Work has been undertaken recently in Cornwall to identify key facilities and services in a number of settlements across Cornwall. This information has been sent to Cornwall Council Members and every Parish Council for verification, and data has been updated where a response has been received, forming the 'Settlement profiles'.[28]
Significant Observed Adverse Effect Level (SOAEL)	This is the level of noise above which significant adverse effects on health and quality of life occur.
Simple Assessment	Initial, brief assessment activity based on the assembly of data and information that is readily available, to fulfil one of the following functions: i. To address unknown aspects in the Scoping assessment level; ii. To reach an understanding of the likely environmental effects to inform the final design and assessment; or, iii. To reach an understanding of the likely environmental effects that identifies the need for a Detailed Assessment.
Site of Special Scientific Interest (SSSI)	An SSSI is a conservation designation denoting a protected area in the United Kingdom, designated due to special interest in its flora, fauna, geological or physiographical features. They are protected by law to conserve their wildlife or geology.
Site Waste Management Plan (SWMP)	SWMPs encourage the effective management of materials and ensure waste is considered at all stages of a project - from design through to completion. Although no longer a regulatory requirement in England, SWMPs are still considered to be good practice.
Special Area of Conservation (SAC)	A Special Area of Conservation is a site designated under the Habitats Directive. These sites, together with Special Protection Areas (or SPAs), are called Natura sites and they are internationally important for threatened habitats and species.
Special Protection Area (SPA)	A special protection area is a designation under the European Union Directive on the Conservation of Wild Birds. Under the Directive, Member States of the European Union (EU) have a duty

[27] http://www.standardsforhighways.co.uk/ha/standards/dmrb/vol5/section1/td3793.pdf

[28] https://www.cornwall.gov.uk/environment-and-planning/planning/planning-policy/adopted-plans/evidence-base/settlements/settlement-profiles/

Glossary Term	Description
	to safeguard the habitats of migratory birds and certain particularly threatened birds.
Statement of Common Ground (SoCG)	A written statement prepared jointly by the applicant and another party or parties, setting out any matters on which they agree. In some cases, statements of common ground will also identify areas where agreement has not been reached.
The Consultation Report	The Consultation Report is a report giving details of the consultation activity carried out by the A30 at the Pre-Application stage, in particular: • what has been done to comply with the Planning Act 2008, including, s42 (consultation with prescribed consultees), s47 (consultation with the community), and s48 (publicity), • details of any relevant responses, and • the account taken of any relevant responses during the preparation of the application.
Unexploded ordnance	Unexploded ordnance, unexploded bombs, or explosive remnants of war are explosive weapons that did not explode when they were employed and still pose a risk of detonation, sometimes many decades after they were used or discarded.
United Nations Economic Commission for Europe (UNECE)	The United Nations Economic Commission for Europe (UNECE) was set up in 1947 it is one of five regional commissions of the United Nations.
Waste Hierarchy	The "waste hierarchy" ranks waste management options according to what is best for the environment. It gives top priority to preventing waste in the first place. When waste is created, it gives priority to preparing it for re-use, then recycling, then recovery, and last of all disposal (e.g. landfill).
Waste Local Plan	Provides further information in support of the implementation of waste planning policy
World Health Organisation (WHO)	The World Health Organization is a specialized agency of the United Nations that is concerned with international public health.
Zone of Theoretical Visibility (ZTV)	This is the zone from which the scheme is theoretically visible over 'bare earth.'
Zone of Visual Influence (ZVI)	The area within which a project may be visible and may influence the quality of views. The 'zone of visual influence' approximately covers all land from which the scheme is visible. It is limited by topographic features such as hill and valleys and by visual barriers such as woodland and buildings.

11 References

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[3] *The Conservation of Habitats and Species Regulations 2017 (Habitat Regulations),* http://www.legislation.gov.uk.

[4] *The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (APFP Regulations),* http://www.legislation.gov.uk/uksi/2009/2264/contents/made.

[5] *Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora,* 1992.

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[7] Department for Transport, "Road Investment Strategy: for the 2015/16 – 2019/20 Road Period," www.gov.uk/government/publications, ISBN 9781474115780, 2015.

[8] Infrastructure Planning Commission, "Planning Act 2008 Chapter 29 Section 22(2)," 2008.

[9] Highways Agency, "Interim Advice Note (IAN) 141/11 Assessment of Implications (of Highways and/or Roads Projects) on European Sites (Including the Appropriate Assessment) and the Planning Act," 2008.

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[11] Highways Agency, "Interim Advice Note 174/13 - Updated advice for evaluating significant local air quality effects for users of DMRB Volume 11, Section 3, Part 1 'Air Quality (HA207/07)".

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[17] English Nature, "Habitat regulations guidance note 3," 1999.

[18] Highways Agency, "Interim Advice Note 185/15 Updated traffic, air quality, and noise advice," 2015.

[19] Highways Agency, "DMRB Volume 11 Section 2 Part 5 HA 205/08 Assessment and Management of Environmental Effects," Highways Agency, 2008.

[20] Highways Agency, "DMRB Volume 11 Section 3 Part 10 HD 45/09 Road Drainage and the Water Environment," Highways Agency, 2009.

[21] Cornwall Council, "Cornwall Local Plan Strategic Policies 2010-2030," 2016.

[22] Cornwall Council, "Cornwall Local Plan Strategic Policies 2010-2030 Community Network Area Sections," 2016.

[23] Truro City and Kenwyn Parish Councils, "Truro and Kenwyn Neighbourhood Plan 2015-2030," 2016.

[24] Centre for Ecology and Hydrology, "Air Polluion Information System (APIS)," Centre for Ecology and Hydrology, 2016. [Online]. Available: http://www.apis.ac.uk/.

[25] Institute of Air Quality Management, "Development Control: Planning for Air Quality (2010 Update)," 2010.

[26] The Planning Inspectorate, "Advice note ten: Habitat Regulations Assessment relevant to nationally significant infrastructure projects," 2017.

[27] Joint Nature Conservation Committee, "Natura 2000 - Standard Data Form for Newlyn Downs SAC 22/12/2015," 2015.

List of Appendices

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