

The Lighthouse Green Fuels Order

Application Reference: EN0110025

Applicant: LGF Projects Limited

Nutrient Neutrality Assessment

Document Reference: 5.9

Revision: 00

APFP Reg 5(2)(q)

Levelling-up and Regeneration Act 2023

Document information

Document Title	Nutrient Neutrality Assessment
Document Ref	5.9
Author	Arup

Revision record

00	Purpose	DCO Application Submission
	Date	September 2026

Information classification

Information Classification	Date	Reason
Public	September 2026	Proprietary information which will have no impact on the company if disclosed publicly

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Abbreviations

Abbreviation	In full
ASU	Air Separation Unit
BNG	Biodiversity Net Gain
CHP	Combined Heat and Power
DCO	Development Consent Order
ES	Environmental Statement
HRA	Habitat Regulations Assessment
LSO	Long Sea Outfall
MW	Megawatt
NSIP	Nationally Significant Infrastructure Project
NWL	Northumbrian Water Ltd
PEIR	Preliminary Environmental Information Report
PINS	Planning Inspectorate
RCBC	Redcar and Cleveland Borough Council
SAF	Sustainable Aviation Fuel
SoS	Secretary of State
SPA	Special Protection Area
STBC	Stockton-on-Tees Borough Council
SuDS	Sustainable Drainage Systems
WwTW	Wastewater Treatment Works

Executive Summary

- 1.1.1 This Nutrient Neutrality Assessment has been prepared on behalf of LGF Projects Limited to support the application for a Development Consent Order (DCO) for the Lighthouse Green Fuels Project at Seal Sands, Teesside. The Proposed Development comprises a commercial-scale advanced Sustainable Aviation Fuel (SAF) production facility and associated infrastructure, including a new quay, utilities connections, wastewater infrastructure and ancillary development. The Proposed Development is anticipated to be the UK's first commercial-scale second-generation SAF facility and is expected to produce approximately 180 million litres of SAF and 30 million litres of renewable naphtha per year.
- 1.1.2 The Proposed Development is located within the Teesmouth and Cleveland Coast Special Protection Area (SPA) and Ramsar site nutrient neutrality catchment. Natural England's nutrient neutrality advice for the River Tees catchment requires competent authorities to consider whether new development could increase nutrient loading to the SPA and Ramsar and adversely affect site integrity. As the Secretary of State (SoS) acts as the competent authority for the DCO application, sufficient information must be provided to demonstrate that the Proposed Development will not result in an adverse effect on the integrity of the designated site.
- 1.1.3 The purpose of this assessment is therefore to identify potential nutrient pathways associated with the Proposed Development, quantify any increase in nitrogen entering the nutrient neutrality catchment, and identify any mitigation required to achieve nutrient neutrality. The assessment has considered construction and operational activities, land use change, surface water runoff, process water discharges and sanitary wastewater generation.
- 1.1.4 An initial screening exercise identified two potential nutrient pathways requiring further consideration: land use change within the catchment and wastewater discharges associated with operation of the Proposed Development. Construction-related sanitary wastewater, operational sanitary wastewater and certain waste streams were screened out where treatment and disposal would occur outside the nutrient neutrality catchment and therefore would not contribute nitrogen loading to the Teesmouth and Cleveland Coast SPA and Ramsar. This is based on the assumption that sanitary wastewater would be sent for off-site treatment in a system that subsequently discharges outside the catchment, such as Maerske-on-Sea sewage treatment works.
- 1.1.5 The Proposed Development has been designed to maximise water recycling and reuse within the production process. Following treatment on site, process effluent would be discharged via Northumbrian Water

Ltd's(NWL) proposed Bran Sands Long Sea Outfall (LSO). The LSO is intended to discharge treated effluent directly to the North Sea, outside the Teesmouth and Cleveland Coast nutrient neutrality catchment. Current programme plans for the Proposed Development and the LSO is expected to be operational before the Proposed Development commences operation. On this basis, process effluent discharged through the LSO would not introduce nutrients to the SPA and Ramsar catchment and therefore does not require nutrient mitigation.

- 1.1.6 A land use change assessment was undertaken using habitat and land cover information developed for the **Framework Biodiversity Net Gain Plan (Application Document Ref. 5.8)** and Natural England's Teesmouth nutrient neutrality calculator methodology for a 15.76ha area of the site where land cover will require permanent change in landcover from grassland, woodland and open mosaic habitat to commercial landcover. This change in surfaces will alter nutrient export characteristics associated with surface water runoff.
- 1.1.7 The current annual nitrogen nutrient export across the Proposed Development was calculated as 79.85kg TN/year and post-development was calculated as 91.02kg TN/year. When adjusted for the 20% uplift in nitrogen calculations as required by the Natural England nutrient neutrality guidance [**Error! Reference source not found.**], a net nitrogen increase of 13.40kg TN/year is estimated as a result of proposed changes to land cover under the Proposed Development. Please note, the land area assessment is subject to change during detailed design. As a result, the calculations in this report may change.
- 1.1.8 This assessment concludes that land use change is the only nutrient pathway resulting from the Proposed Development requiring mitigation. No additional nutrient loading from construction workers, operational workforce wastewater, contaminated drainage or process effluent has been identified under the assumed operational scenario because these waste streams would either be managed outside the nutrient neutrality catchment or discharged via the LSO directly to the North Sea.
- 1.1.9 To address the identified nitrogen increase of 13.40kg TN/year, the Applicant will develop a nutrient mitigation plan to secure nutrient mitigation prior to commencement of operation of the Proposed Scheme. Land fallowing has been identified as a potential mitigation mechanism, however further work will be undertaken to identify, assess and secure an appropriate mitigation site, calculate the site-specific nutrient reduction that can be achieved, and confirm the final quantum of land required in advance of the commencement of the authorised development. Preliminary

calculations indicate that between approximately 0.61ha and 0.80ha of suitable agricultural land may be required, depending on the baseline land use and existing nitrogen loading characteristics of the mitigation site.

1.1.10 At the time of writing, a specific mitigation site has not yet been identified. Alternative mitigation mechanisms, including the purchase of nutrient credits or participation in a recognised strategic mitigation scheme, may also be considered if appropriate. The final mitigation package will need to be secured and agreed with the relevant stakeholders to ensure nutrient neutrality can be demonstrated.

1.1.11 Subject to delivery of the required nutrient mitigation, the assessment concludes that the increase in nutrient loading associated with land use change can be fully offset. The Proposed Development would therefore be capable of achieving nutrient neutrality and would not result in an adverse effect on the integrity of the Teesmouth and Cleveland Coast SPA and Ramsar as a result of nutrient enrichment.

2 Introduction

2.1 Overview

- 2.1.1 This **Nutrient Neutrality Assessment (Application Document Ref. 5.9)** has been prepared by Ove Arup and Partners Limited (Arup) on behalf of LGF Projects Limited (the Applicant), to support an application (the Application) seeking development consent for the construction, operation, maintenance and decommissioning of the Lighthouse Green Fuels (LGF) project (the Proposed Development) on land within the administrative boundaries of Stockton-on-Tees Borough Council (STBC) and Redcar and Cleveland Borough Council (RCBC).
- 2.1.2 The Order limits for the Proposed Development are made up of the Main Site and Wider Site, together 'the Site'. A more detailed description of the Site is set out at Section 2.4.
- 2.1.3 The Application has been submitted to the Planning Inspectorate (PINS), and the decision whether to grant a Development Consent Order (DCO) will be made by the Secretary of State (SoS) for Energy Security and Net Zero pursuant to the Planning Act 2008 (the PA 2008) [Ref 1].
- 2.1.4 The Proposed Development comprises a commercial-scale second generation Sustainable Aviation Fuel (SAF) production facility and associated infrastructure.

2.2 The Applicant

- 2.2.1 The Applicant is wholly owned by Alfanar Energy Limited (Alfanar). Alfanar is part of a global project development, manufacturing, and engineering group headquartered in Saudi Arabia. Alfanar has developed significant in-house feedstock-to-SAF expertise. This experience will be utilised to construct and operate the Proposed Development.

2.3 Overview of the Proposed Development

- 2.3.1 The Proposed Development is anticipated to be the UK's first commercial-scale second generation SAF production facility.
- 2.3.2 The Proposed Development includes the construction, operation, maintenance and decommissioning of a commercial-scale facility that will produce approximately 180 million litres of advanced SAF and approximately 30 million litres of renewable naphtha each year.
- 2.3.3 The Proposed Development includes the following elements (the location of each Work No. is shown on the **Works Plans (Application Document Ref 2.4)**):

Table 2.1 Works Description Summaries

Work Number:	
Work No. 1	SAF production facility comprising: • 1A - feedstock pre-treatment facility including flue gas treatment and stack • 1B - SAF processing facility including thermal oxidiser, flue gas treatment, and stack • 1C - up to two flare structures
Work No. 2	Combined heat and power (CHP) generating station comprising: • 2A - boilers and steam turbine generators • 2B - flue gas treatment and stack
Work No. 3	Feedstock and intermediate and final product handling and storage
Work No. 4	Cooling infrastructure for SAF production facility and CHP plant
Work No. 5	Bridge and culvert crossings of existing infrastructure
Work No. 6	Marine infrastructure comprising: • 6A - construction of permanent quay • 6B - permanent quay • 6C - capital and maintenance dredging
Work No. 7	Electrical connection works comprising: • 7A - underground and overground cable connections to the existing North Bank Supply Point • 7B - electrical connection works
Work No. 8	Modified or new natural gas connection and above ground infrastructure (AGI)
Work No. 9	Supply of industrial gases: Only one of Work No. 9A or Work No. 9B would be developed; • 9A - industrial gases connection works comprising installation of new and repurposing of oxygen and nitrogen pipeline connections, and connection to existing low pressure nitrogen supply • 9B - air separation unit (ASU) facility and connections to Work No. 1
Work No. 10	Modification or removal and replacement of industrial wastewater pipeline connection works
Works No. 11	• Export connection works: 11A - pipeline(s) for the export of SAF and renewable naphtha • 11B or 11C - a pipeline for the export of carbon dioxide (CO₂) connecting to AGI by others (being either AGI C1 or C2 of the Northern Endurance Partnership (NEP) transport and storage pipeline) Only one of Work No. 11B or Work No. 11C would be developed
Works No. 12	Surface water attenuation, and drainage and discharge works
Works No. 13	Laydown areas comprising: • 13A - temporary construction compounds and laydown areas • 13B - permanent laydown and storage

Work No. 14	Access works and private street improvements
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- 2.3.4 In addition a range of associated development, both specified and unspecified, is proposed in relation to the above.
- 2.3.5 The new quay on the River Tees (**Work No. 6**) will allow delivery of modular plant and construction materials by ship during construction and biomass and waste wood feedstock during operation, reducing reliance on road transport. Feedstock will be stored (**Work No. 3**) then pre-treated at the Main Site and processed into SAF through gasification and gas-to-liquids processes (**Work No.1**).
- 2.3.6 To support operations, the Proposed Development will include a biomass and waste wood-fired CHP plant (**Work No. 2**) with an electrical output capacity of up to 200 megawatts electrical (MWe), providing a low-carbon energy supply for the SAF process. Cooling infrastructure (**Work No. 4**) will be required for the SAF process and the CHP plant. Connections will provide electricity for start-up and to maintain ancillary site supplies (**Work No. 7**), natural gas for start-up and as auxiliary fuel for some processes during operation (**Work No. 8**), and oxygen and nitrogen which will either be delivered to the Site via pipelines or produced by a new ASU in the Main Site (**Work No. 9A** or **9B** respectively). Waste materials, including off-specification materials will be exported from the Main Site by road. Finished products (SAF, and a secondary product of the process, renewable naphtha) will be transferred via pipeline(s) (**Work No. 11A**) to local marine loading facilities for marine export or export by road. CO₂ from the acid gas removal unit in **Work No. 1B** will be exported via pipeline (**Work No. 11B** or **Work No. 11C**) subject to a suitable agreement to connect to one of two proximate AGIs in the NEP project.
- 2.3.7 The Proposed Development will also include replacement and new wastewater pipeline connection works (**Work No. 10**), surface water drainage systems (**Work No. 12**) and access and street improvements (**Work No. 14**). Space within the Wider Site is identified for temporary construction and laydown and space within the Main Site identified for permanent laydown and storage areas (**Work No. 13**).
- 2.3.8 The preliminary layout of the Proposed Development is shown on **Indicative General Arrangement Plan (Application Document Ref 2.5.1)** and **Indicative General Arrangement Isometric (Application Document Ref 2.5.2)**.

2.4 The Site

- 2.4.1 The Site location and boundary (which is also known as the 'Order limits') are shown on **Site Location Plan (Application Document Ref 2.1)**. The Site is located in Teesside on land to the north and south of the River Tees with connection corridors crossing the Tees.
- 2.4.2 The Main Site is located in the industrial area of Seal Sands approximately 5km east of Billingham town centre and 4km north-east of Middlesbrough town centre, on the north bank of the River Tees in the borough of Stockton-on-Tees). The majority of the Main Site lies south of Seal Sands Road and largely comprises previously developed land formerly used as a chemical plant from the early 1970s. It was last operated by INEOS Nitriles.
- 2.4.3 The Main Site comprises the main SAF facility development area of the Site, lying to the south and north sides of Seal Sands Road and bounded by the proposed quay in the River Tees, with the River Tees to the east.
- 2.4.4 The eastern boundary of the Main Site is formed by the River Tees, where existing jetties will be demolished and a new quay developed.
- 2.4.5 The Wider Site comprises the connection corridors, including land required for road access, pipelines (including under the River Tees), dredging near to the Main Site, and utility connections and construction laydown in both North Tees and (in the borough of Redcar and Cleveland) South Tees.

2.5 The DCO Process

- 2.5.1 Part 3 of the PA 2008 defines which projects constitute a nationally significant infrastructure project (NSIP). Once classed as an NSIP, development consent (in the form of a DCO) is required under Part 4 of the PA 2008.
- 2.5.2 In legislative terms the Proposed Development comprises both a SAF production facility and a CHP generating station together with development associated with the SAF production facility and the CHP generating station.
- 2.5.3 The construction and operation of the main SAF production facility does not automatically fall within the definition of an NSIP. Therefore, on 12 August 2025, the Applicant formally requested a direction by the SoS for Energy Security and Net Zero, pursuant to section 35(1) of the PA 2008, that the following elements be treated as one for which development consent is required. The Section 35 direction request was made in respect of: a main gasification facility to process sustainably sourced biomass; feedstock pre-treatment, syngas clean-up apparatus; Fischer-Tropsch process units; refining units; feedstock, intermediates and finished product storage; quayside with ship loading/ offloading infrastructure; supporting

infrastructure and utility connections (hereafter called the 'Specified Elements').

- 2.5.4 The SoS for Energy Security and Net Zero issued a direction under Section 35 of the PA 2008 [Ref 1] on 08 September 2025 to confirm that the Specified Elements of the Proposed Development, together with any matters/ development associated with them, should be treated as development for which development consent under the PA 2008 is required.
- 2.5.5 The CHP plant (**Work No. 2**) surpasses the 50 Megawatt (MW) threshold for generating stations defined in Section 15 of the PA 2008 and is therefore a NSIP in its own right.
- 2.5.6 An application for development consent for the Proposed Development has been submitted to PINS acting on behalf of the SoS. Subject to the Application being accepted, PINS will then examine it and make a recommendation to the SoS who will then decide whether to grant a DCO.
- 2.5.7 The application for development consent for the Proposed Development supersedes a previous application that was being progressed by Lighthouse Green Fuels Limited centred on a site off Huntsman Drive in Seal Sands, TS2 1TT (PINS ref. EN010150). Statutory consultation on that application took place between 16 May 2024 and 20 June 2024. As shown on the PINS website¹, that application is discontinued.

2.6 The Purpose and structure of this document

- 2.6.1 This Nutrient Neutrality Assessment has been prepared to support the DCO application for the Proposed Development. The assessment provides the information needed to determine whether the Proposed Development could increase nutrient loading within the Teesmouth and Cleveland Coast SPA and Ramsar nutrient neutrality catchment.
- 2.6.2 Natural England has advised that development proposals within the Tees catchment must demonstrate that they will not result in additional nutrient inputs that could affect the integrity of the Teesmouth and Cleveland Coast SPA and Ramsar. As the Proposed Development lies within this nutrient-sensitive catchment, an assessment is required to identify potential nutrient pathways, quantify any changes in nitrogen loading and determine whether mitigation is necessary.
- 2.6.3 The assessment considers nutrient impacts arising from construction and operation of the Proposed Development, including land use change, surface water runoff, process effluent and wastewater management. Potential pathways by which nutrients could enter the designated site have

¹ <https://national-infrastructure-consenting.planninginspectorate.gov.uk/projects/EN010150>

been screened and assessed using Natural England guidance [Ref 3] and the Teesmouth nutrient neutrality methodology [Ref 4].

- 2.6.4 The overall purpose of this document is therefore to demonstrate that nutrient effects associated with the Proposed Development have been appropriately assessed and that measures can be secured to ensure compliance with the Conservation of Habitat and Species Regulation 2017 (the 'Habitat Regulations') [Ref 5] and Natural England's nutrient neutrality requirements.
- 2.6.5 This document sets out the approach and findings of the nutrient neutrality assessment and demonstrates how potential nutrient effects arising from the Proposed Development have been assessed. The structure of the report is outlined below.
- Introduction – This section introduces the Proposed Development, the Applicant and the planning context for the Proposed Development. It explains the purpose of the Nutrient Neutrality Assessment, its relationship with the Development Consent Order application, and outlines the legislative and regulatory framework relevant to this nutrient neutrality assessment
 - Nutrient Catchment Overview – This section provides an overview of nutrient neutrality and the regulatory requirements that apply within the Teesmouth and Cleveland Coast SPA and Ramsar nutrient neutrality catchment. It describes the designated site's ecological importance, the reasons nutrient neutrality measures are required, and the role of Natural England's statutory advice in informing development proposals within the catchment.
 - Engagement – This section summarises engagement undertaken with key stakeholders, including Natural England and the Environment Agency (EA), throughout development of the assessment. It presents relevant consultation responses received during the planning process and explains how comments and feedback have informed the assessment methodology and approach.
 - The Proposed Development – This section describes the Proposed Development, including the Site location, existing conditions and relevant operational processes. It also provides details of the proposed drainage, wastewater and water management arrangements, which are relevant to understanding potential nutrient pathways and nutrient loading risks associated with the development.
 - Methodology of this assessment – This section sets out the approach used to assess potential nutrient impacts arising from the Proposed

Development. It explains the screening process, assessment assumptions, nutrient loading calculations, wastewater pathway mapping and land use change assessment, together with the data sources and guidance used to undertake the assessment.

- Nutrient impact calculation – This section presents the results of the nutrient neutrality assessment and quantifies the potential nitrogen loading associated with the Proposed Development. It assesses construction and operational nutrient pathways, identifies those that can be screened out, and calculates the net nutrient increase requiring mitigation in accordance with Natural England's nutrient neutrality methodology.
- Mitigation – This section identifies the mitigation measures required to achieve nutrient neutrality for the Proposed Development. It describes the proposed mitigation strategy, including land fallowing and other potential mechanisms, and explains how mitigation will be secured to ensure that the Proposed Development does not result in an adverse effect on the integrity of the Teesmouth and Cleveland Coast SPA and Ramsar site.

3 Nutrient catchment overview

3.1 Context

- 3.1.1 Nutrient neutrality is a regulatory approach developed by Natural England to address the risk that new development could worsen water quality at protected habitat sites. Many estuarine (including the Teesmouth and Cleveland Coast SPA and Ramsar) are already in unfavourable condition due to excessive nitrogen, which drive eutrophication. This process leads to algal blooms, reduced oxygen levels, and degradation of habitats that support protected species. Under the Habitats Regulations, competent authorities must be certain that new plans or projects will not adversely affect site integrity.
- 3.1.2 In this context, new development, particularly that generating wastewater and altering land use, within these designated catchments can increase nutrient loads. As many designated sites are already exceeding environmental thresholds, it is typically not possible to rule out likely significant effects from additional nutrient inputs, even if these increases are relatively small. As a result, development proposals must undergo Habitats Regulations Assessment (HRA) in accordance with the Habitat Regulations [Ref 5], and mitigation is required where adverse effects cannot be excluded.
- 3.1.3 Nutrient neutrality provides a mechanism to enable development to proceed while ensuring compliance with the Habitats Regulations. It requires that any increase in nutrient loading arising from a development is fully mitigated, such that there is no net increase in nutrient inputs to the designated site.

3.2 The Teesmouth and Cleveland Coast Special Protection Area (SPA) and Ramsar Nutrient Designation

- 3.2.1 The Teesmouth and Cleveland Coast SPA and Ramsar site are sites of international importance for internationally significant bird populations and intertidal habitats respectively and is therefore subject to the highest level of protection under the Habitats Regulations [Ref 5]. Further detail on the designation and pressures on the Teesmouth and Cleveland Coast SPA and Ramsar is set out in the **Habitat Regulations Assessment (Application Document Ref. 5.11)**, to which this report is appended.
- 3.2.2 The Teesmouth and Cleveland Coast SPA and Ramsar site are currently in unfavourable condition as a result of the elevated nitrogen concentrations identified as a key pressure on its ecological integrity [Ref 6]. Excessive nutrient inputs from the catchment, for example in wastewater discharges,

urban runoff, and from agricultural sources, can result in algal blooms, smothering, reduced dissolved oxygen, and habitat degradation.

- 3.2.3 On 16 March 2022, Natural England issued statutory advice [Ref 6] to Competent Authorities (as defined by the Habitat Regulations [Ref 5]) within the Tees River Catchment on certain new development proposals with the potential to affect water quality resulting in nutrient impacts on habitat sites. This advice applies to all planning authorities within the Tees River Catchment, the EA Area and National Teams, Planning Inspectorate and Department for Levelling Up, Housing and Local Government. The advice requires that the Competent Authority must consider the nutrient impacts on habitat sites from any new plans or projects in the catchment in determining planning decisions for development, reflecting evidence of elevated nitrogen levels within the River Tees and its downstream receiving environments.
- 3.2.4 As a result of Natural England's statutory advice, development proposals that would lead to an increase in nitrogen loading to the River Tees and the Teesmouth and Cleveland SPA and Ramsar site must demonstrate that they will not give rise to additional nutrient inputs. Where a pathway exists, such developments are required to achieve nutrient neutrality in order to be considered acceptable, and permission cannot be granted where likely significant effects on an SPA cannot be excluded.
- 3.2.5 The Proposed Development is seeking consent through a DCO under the PA 2008 [Ref 1], therefore the SoS acts as the Competent Authority in determining whether the application receives planning consent. The SoS must therefore be satisfied that the plans for the Proposed Development would not result in any net increase in nitrogen loading to the River Tees and the Teesmouth and Cleveland SPA in accordance with the Proposed Development's obligations under the Habitat Regulations [Ref 5].

4 Engagement

- 4.1.1 The consultation undertaken with statutory consultees to inform this chapter, including a summary of comments, relevant to the Water Environment raised is summarised in Table 4.1.
- 4.1.2 The following meetings were held with statutory consultees to discuss the relevant consultation responses in more detail. The outcomes of those meetings have informed this assessment and **ES Chapter 12: Water Environment (ES Volume I, Application Document Ref. 6.1)**.
- 5 March 2026 – Meeting with Natural England;
 - 17 April 2026 – Meeting with EA's Area and Biodiversity and Fisheries team;
 - 20 April 2026 – Meeting with EA's area Water Quality, Water Resources and Groundwater teams; and
 - 29 June 2026 – Meeting with EA and Natural England's water quality, EIA, HRA and permitting teams.

Table 4.1 Summary of consultation feedback to the Preliminary Environmental Information Report (PEIR) for the Proposed Scheme related to nutrient neutrality.

Stakeholder	Date	Summary of Consultee comment	Summary of response
EA	Scoping Opinion (November 2025)	Waste effluent will be sent to Bran Sands Wastewater Treatment Works (WwTW) for treatment, and the ES must assess downstream environmental impacts. It should outline assumptions on the timing and risks of delivering the long sea outfall to Tees Bay and confirm agreement with Northumbrian Water. If not agreed, the ES must assess alternative discharge arrangements and their impacts. It also notes wastewater will go to an existing treatment plant with no normal discharge to the River Tees, but it is unclear where treated effluent will be released and if abnormal discharges could occur. The proposal to use NWL Bran Sands WwTW, which currently discharges to the Tees estuary via Dabholm Gut, will increase nitrogen loading. The ES must assess water quality impacts and include a nutrient neutrality mitigation scheme for the Tees Estuary Transitional Waterbody.	The LSO is assumed to be operational for the discharge of treated effluent associated with the Proposed Development. ES Chapter 12: Water Environment (ES Volume I, Application Document Ref 6.1) assesses the potential impacts of this discharge strategy, including implications for the Tees Estuary and Tees Bay. This assumption is based on the current programme, which indicates that the LSO is expected to be operational by April 2030, in advance of the anticipated commencement of commercial operations in 2031. Under this scenario, treated process effluent would be discharged directly to the North Sea outside the nutrient neutrality catchment and would not contribute to nutrient loading within the Tees catchment. Should the LSO not be available when the Proposed Development is due to commence operation, the Applicant would need to review any interim discharge arrangements and demonstrate, through an updated nutrient neutrality assessment and any necessary mitigation measures, that nutrient neutrality can be achieved before operation commences. The facility is not intended to operate in a manner that would result in unmitigated nutrient impacts to the Tees catchment.
EA	PEIR Response (January 2026)	It is noted that a Nutrient Neutrality and Water Framework Directive D assessment will be undertaken to evaluate the impacts of increased nitrogen on the area. This approach is welcomed.	No further assessments or modelling have been undertaken at this stage but may be undertaken in subsequent stages of the application process to inform permitting and detailed design.

Stakeholder	Date	Summary of Consultee comment	Summary of response
		Depending on the outcomes of these assessments, further work including additional assessments and potentially modelling may be required.	
Natural England	PEIR Response (January 2026)	The PEIR assesses water quality impacts based on water being discharged through a proposed LSO. However, there is insufficient information provided at this stage to judge what mitigation would be required if the LSO was not delivered in time or if mitigation would be feasible. The ES should include estimates of the likely nutrient and other contaminant loading of the potential wastewater and a feasibility study of potential mitigation options.	As above, this assessment assumed the LSO will be operational in advance of the operation of the Proposed Scheme. The assessment is based on the reasonable worst-case assumption that the LSO will be operational before commencement of operation of the Proposed Development. The Proposed Development design basis is to use the LSO.
Natural England	PEIR Response (January 2026)	The worst-case scenario that the LSO at Bran Sands will not be constructed or operational in time has been mentioned, but no further consideration has been given to the impacts from this scenario in the outlined assessment. The worst-case scenario should be further developed and impacts from this scenario, and potential mitigation considered as part of the impact assessment.	The assessment is based on the reasonable worst-case assumption that the LSO will be operational before commencement of operation of the Proposed Development. The programme risk that the LSO is not operational in advance of commercial operations of the Proposed Development are assessed to be low, and therefore only the scenario in which the LSO is operation is assumed in this assessment. In the event that the LSO is not operation in advance of the Proposed Development, an alternative industrial wastewater discharge strategy will be required

5 The Proposed Development

5.1 Site description

- 5.1.1 The Proposed Development is located in Teesside, on land to the north and south of the River Tees. It comprises the Main Site and the Wider Site, which encompasses a total area of 190.78ha. The Main Site is to be located in Seal Sands, off Seal Sands Road in Stockton-on-Tees Borough, where the SAF Production Facility will be situated (grid reference 453076, 523799). 'The Site' refers to the whole site (including the Main Site and Wider Site).
- 5.1.2 The Main Site is located in North Tees in the Seal Sands industrial area, approximately 5km east of Billingham town centre and 4km north east of Middlesbrough town centre. The majority of the Main Site lies south of Seal Sands Road and largely comprises previously developed land formerly used as a chemical plant from the early 1970s. It was last operated by INEOS Nitriles. A rectangular shaped parcel of undeveloped land lies immediately to the north of Seal Sands Road.
- 5.1.3 The Proposed Development and surrounding areas consist of various former and current industrial facilities and associated access roads as well as various semi-natural habitats, including grasslands, wetlands, broadleaved woodlands, sparsely vegetated land, scrub, intertidal habitat and open mosaic habitat.
- 5.1.4 A summary of habitat cover across the site is set out in **Chapter 10: Terrestrial Ecology (ES Volume I, Application Document Ref 6.1)** and the **Biodiversity Net Gain Report (Application Document Ref 5.8)**.

5.2 Surface water drainage

- 5.2.1 The surface water drainage strategy (**Framework Drainage Strategy, Application Document Ref 5.7**) for the Proposed Development accompanies the DCO application.
- 5.2.2 The Proposed Development will use an integrated site drainage network designed to manage surface water, foul water and process effluent as discrete drainage streams. Surface water runoff will be collected via the site drainage system, routed through treatment and attenuation infrastructure including retention ponds on the Main Site, and discharged to the River Tees in accordance with the Framework Drainage Strategy. The drainage design also incorporates pollution prevention and control measures, including segregation of foul drainage, upstream treatment, emergency isolation, and monitoring provisions to reduce the risk of contaminated runoff or accidental releases affecting receiving waterbodies.

5.3 Process water and wastewater

- 5.3.1 The Proposed Development will require a raw water supply and discharge for the SAF production process.
- 5.3.2 Raw water will be supplied from the Northumbrian Water Ltd supply throughout operation of the Proposed Development. Continuous operation is planned for the site's operation (24hrs/day, 365 days/year). Inflows will be treated for processing and diverted to three streams:
- demineralised for use in SAF production;
 - used within the SAF production cooling systems, and
 - usage within the wider site as utility water.
- 5.3.3 The SAF plant has been designed to recycle and reuse water within the system as far as possible, including through a water recovery reverse osmosis process.
- 5.3.4 Process effluent that cannot be reused or recycled within the facility will be treated within the Proposed Development and discharged via the proposed LSO pipeline to the North Sea. The maximum total nitrogen concentration in the process effluent post-treatment will not exceed 10mg/l.
- 5.3.5 The LSO is planned to reduce nutrient nitrogen concentrations within the Teesmouth and Cleveland Coast SPA and Ramsar site. This is expected to be operational by 1 April 2030. The LSO will comprise an approximately 3km onshore and 4.5km offshore pipeline.
- 5.3.6 Construction of the Proposed Development could (subject to the necessary consents being granted and an investment decision being made) start in

2028. Assuming an approximate three-and-a-half-year construction programme followed by a period of commissioning, the Proposed Development is unlikely to commence commercial operation before 2031. It is therefore expected that the LSO, with an estimated completion date of April 2030, will be operational in advance of the Proposed Development becoming operational. As such, the LSO would be in operational from Day One of operations for the Proposed Development.

- 5.3.7 In the unlikely event that the of the LSO is not completed in advance of the Proposed Development becoming operational, a further assessment would be required to report the impacts and any associated mitigation of any interim discharge arrangement on nutrient loading to the Teesmouth and Cleveland Coast SPA and Ramsar site. This does not form part of the current application.

5.4 Sanitary wastewater

- 5.4.1 Potable water will be supplied by NWL for domestic and sanitary use across the Site.
- 5.4.2 Domestic and sanitary wastewater will be collected into a septic tank or cess pit for storage in advance of transport to an offsite processing plant. Domestic and sanitary wastewater processing and disposal will be located outside of the nutrient neutrality catchment, and therefore will not constitute a pathway for additional nutrient loading of the Teesmouth and Cleveland Coast SPA and Ramsar nutrient neutrality catchment.
- 5.4.3 Nitrogen loading from domestic and sanitary wastewater has therefore been scoped out of further assessment.

6 Methodology of this assessment

6.1 Initial screening

- 6.1.1 An initial screening assessment identified that the Proposed Development is located within the Teesmouth and Cleveland Coast SPA and Ramsar site nutrient neutrality catchment as defined by Natural England in the advice published 16 March 2022 [Ref 6]. Surface runoff from the site to the nutrient catchment could therefore not be screened out and further analysis of land use change impacts on nutrient loading to the catchment was therefore required.
- 6.1.2 Potential effluent discharge points were also identified within the Teesmouth and Cleveland Coast SPA and Ramsar site catchment. Further analysis of the nutrient pathways and discharge points to the River Tees were therefore undertaken.

6.2 Construction impacts of the Proposed Development

- 6.2.1 Domestic and sanitary wastewater will be transported for offsite disposal outside of the nutrient neutrality catchment area, as set out in Section 5.4. Nitrogen impacts from additional construction workers operating within the catchment have therefore been excluded from further assessment.

6.3 Land use change impacts of the Proposed Development

- 6.3.1 Changes in site cover and drainage characteristics can influence the amount of nitrogen entering receiving waters through surface runoff. As such, a land use change assessment was undertaken as part of the nutrient neutrality assessment to determine whether redevelopment of the site would alter baseline nutrient export to the designated catchment.
- 6.3.2 The land use change assessment compares the existing land use baseline with the post-development scenario to identify how all land use changes resulting from the Proposed Development impact nutrient loading to the nutrient neutrality catchment. Land cover is a key determinant of nutrient export, influencing pathways such as surface water runoff, infiltration and permeability, fertiliser inputs, and the mobilisation and transport of nutrients to receiving waters. Land use change resulting from the Proposed Development has therefore been screened into this assessment.
- 6.3.3 Land cover change will occur on an area of 15.76ha as a result of works required for the Proposed Development. This is located in the north of the Proposed Development in the Seal Sands industrial area. This land mostly comprises sparsely vegetated urban land, with some grassland and woodland cover. The redevelopment of the Main Site will not result in any land use changes since the Site was formerly an industrial use.

- 6.3.4 The pre- and post- development land cover assessments for the 15.76ha site were derived from land cover analysis taken from the **BNG Report (Application Document Ref 5.8)**. These land cover areas were inputted into Natural England's Teesmouth SPA and Ramsar site: nutrient neutrality calculator to identify the nutrient loading from surface water runoff [Ref 4].
- 6.3.5 Professional judgement was applied to convert UKHab categories from the BNG surveys to the broad landcover types in the Natural England nutrient neutrality calculator. Where no direct comparative category was available, a precautionary approach was taken to assign the land cover type associated with a higher nutrient export rate to avoid potential underestimation of nutrient runoff from the land use change.
- 6.3.6 Other inputs to the land use change calculator included:
- the operational catchment in which the site is located: Tees Lower and Estuary [Ref 7];
 - soil type: 'naturally wet' – clayey and loamey of coastal flats with naturally high groundwater soil type (Soilscape 21) [Ref 8];
 - annual average rainfall: 560 mm (Latitude: 54.6167, Longitude: -1.1737) [Ref 9]; and
 - the main Site is not within a nitrate vulnerable zone [Ref 10].

6.4 Sustainable Drainage Systems (SuDS)

- 6.4.1 The Proposed Development's **Framework Drainage Strategy** (appended to the **Flood Risk Assessment, Application Document Ref. 5.7**) incorporates a site drainage network including attenuation and treatment infrastructure, such as retention ponds, designed to manage runoff and control discharge rates. However, due to site constraints and the industrial nature of the development, conventional SuDS measures that may provide quantifiable nutrient reduction benefits have not been assumed within the nutrient neutrality assessment. Consequently, on a precautionary basis, no nutrient reduction associated with SuDS has been included within the calculations.

6.5 Wastewater pathway screening

- potential wastewater pathways associated with the Proposed Development were reviewed to determine whether they could result in nitrogen loading to the Teesmouth and Cleveland Coast SPA and Ramsar nutrient neutrality catchment. The wastewater streams considered were process water effluent;
- surface water runoff; and

- chemical and hazardous waste.

- 6.5.1 Domestic and sanitary wastewater will be collected and transported off site for treatment and disposal outside the nutrient neutrality catchment, as described in Section 5.5. These wastewater streams do not therefore provide a pathway for additional nitrogen loading to the Teesmouth and Cleveland Coast SPA and Ramsar site and have been screened out of further assessment. The Proposed Development assumes that treated process effluent will be discharged via the proposed LSO directly to the North Sea. As the discharge location lies outside the nutrient neutrality catchment, process effluent would not result in a nutrient pathway to the Teesmouth and Cleveland Coast SPA and Ramsar site.
- 6.5.2 For completeness, a screening calculation was undertaken to estimate the potential nitrogen load that could arise from process effluent should discharge occur within the nutrient neutrality catchment. This was calculated by multiplying the annual wastewater discharge volume by the maximum permitted total nitrogen concentration in the treated effluent, as shown in Equation 1. The calculation is presented solely to illustrate the screening approach and does not represent the assessment scenario considered in this Nutrient Neutrality Assessment.

Equation 1:

Equation to calculate total annual nitrogen effluent (mg) from the Proposed Development

$$[\text{annual process water discharge (l)}] \times [\text{maximum concentration of total N (mg/l)}] \\ = \text{total annual nitrogen effluent (mg)}$$

- 6.5.3 Wastewater pathway screening was undertaken to quantify the nitrogen impacts of the Proposed Development, as set out in Section 7.3.

7 Nutrient impact calculation

7.1 Nitrogen impacts from construction of the Proposed Development

- 7.1.1 As set out in Section 6.2, wastewater from construction of the Proposed Development will be transported for offsite disposal outside of the nutrient neutrality catchment and is therefore excluded from further assessment.
- 7.1.2 If waste disposal practices change, for example the Proposed Development discharges construction worker domestic and sanitary waste within the nutrient neutrality catchment or to a treatment works located within a different nutrient neutrality catchment, an additional nutrient neutrality assessment will be required.

7.2 Land use change impacts of the Proposed Development

- 7.2.1 As described in Section 6.3, the Proposed Development will require a change in land cover within a 15.76ha area of the Site, with existing habitats and land cover converted to developed uses including hardstanding, buildings, access infrastructure and other urban land. This is expected to increase surface water runoff, increasing risks of nitrogen loading to the River Tees.
- 7.2.2 Pre- and post- development land use cover was calculated for the BNG assessment and classified into the broad land cover categories in Natural England's Teesmouth Nutrient Neutrality Calculator [Ref 4]. Nitrogen nutrient export values are provided within the calculator. Further detail on the inputs to and outputs from the calculator are included in Annex A:
- 7.2.3 The pre-development land cover and associated annual nitrogen nutrient export for the Site is included below in Table 7.1.

Table 7.1 Pre-development land use and estimated annual nitrogen nutrient export (as calculated from the Natural England calculator) across the Site

Existing (pre-development) land cover	Area (ha)	Annual nitrogen nutrient export (kg TN/yr)
Open urban land	9.57	61.10
Greenspace	4.90	14.71
Woodland	1.01	3.04
Shrub	0.21	0.62
Commercial/industrial urban land	0.07	0.39
TOTAL	15.76	79.85

7.2.4 The post-development land cover and associated annual nitrogen nutrient export for the Site is included below in Table 7.2.

Table 7.2 Post-development land use and annual nitrogen nutrient export across the Site

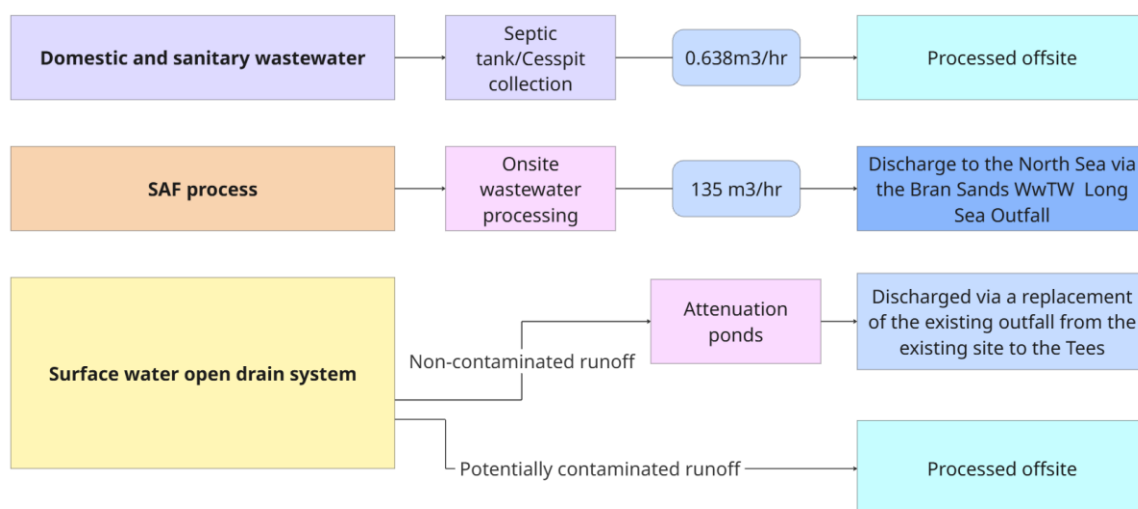
Proposed (post-development) land cover	Area (ha)	Annual nitrogen nutrient export (kg TN/yr)
Commercial/industrial urban land	15.76	91.02
TOTAL	15.76	91.02

7.2.5 The current annual nitrogen nutrient land use export across the Site was calculated as 79.85kg TN/year. The post-development annual nitrogen nutrient export was calculated as 91.02kg TN/year.

7.2.6 Comparison of the pre- and post- development land use change identified a net nitrogen increase of 11.17kg TN/year. A buffer of 20% was subsequently applied, for consistency with Natural England guidance for nutrient estimation [Ref 4]. A total of **13.40kg TN/year** therefore requires mitigation to account for increases in nitrogen from land cover change resulting from the Proposed Development.

7.3 Wastewater pathway mapping of the Proposed Development:

7.3.1 The Proposed Development will require the use of water for a range of operational purposes. Discharge of wastewater following operational use or drainage from the from the site is set out in Section 6.5, which illustrates the nitrogen pathways which have been considered in developing this nutrient neutrality assessment.



Inset 7.1 Wastewater nutrient pathway mapping from the Proposed Development

7.4 Offsite wastewater treatment

7.4.1 The Proposed Development's wastewater management strategy includes the off-site transfer of certain wastewater streams to an external treatment facility. This includes:

- domestic and sanitary wastewater; and
- potentially contaminated runoff from the surface water open drainage system.

7.4.2 As these wastewater streams are transported for treatment and disposal outside the nutrient neutrality catchment, they do not contribute to nitrogen loading within the catchment. They have therefore been screened out of further assessment.

7.5 Industrial wastewater

7.5.1 An assessment of nitrogen pathway was undertaken to quantify the Proposed Development's impacts to the Teesmouth and Clevedon SPA and Ramsar site.

7.5.2 Inset 7.1 sets out the nitrogen pathways through wastewater discharge from the Proposed Development. Elements of the Proposed Development which discharge wastewater through the LSO will comprise treated wastewater effluent from the SAF process.

7.5.3 Treated wastewater would be discharged via the LSO to the North Sea, and therefore outside of the nutrient neutrality catchment. Impacts to the Teesmouth and Cleveland Coast SPA and Ramsar site would therefore be

avoided, so no further nutrient calculations or assessment for discharge of process effluent from the Proposed Development is required.

- 7.5.4 Uncontaminated runoff from the surface water open drain system, will be discharged through a replacement outfall into the River Tees.

7.6 Summary

- 7.6.1 Nutrient loading pathways to the Teesmouth and Cleveland Coast SPA and Ramsar from the Proposed Development has been assessed. No additional nutrient loading through construction and operational worker effluent was identified as these waste streams are planned to be transported for offsite disposal outside the nutrient neutrality catchment. Similarly, high risk and contaminated waste streams are also transported for offsite disposal outside the nutrient neutrality catchment.
- 7.6.2 One nutrient pathway from the Proposed Development to the Teesmouth and Cleveland Coast SPA and Ramsar site was identified: land use change. Land use change is estimated to introduce an additional 11.17 TN/year to the catchment. In accordance with Natural England standards for nutrient assessment, a precautionary uplift of 20% was applied to nitrogen calculations, resulting in a total nitrogen load of **13.40kg TN/year**.

8 Mitigation

8.1 Nutrient mitigation overview

- 8.1.1 In accordance with the nutrient neutrality guidance issued by Natural England [Ref 3], mitigation is required where a Proposed Development would result in a net increase in nitrogen loading within a nutrient-sensitive catchment that drains to a habitat site. A habitat site is a legally protected, water-dependant natural area that is vulnerable to excess nitrogen and which is often in an unfavourable condition due to eutrophication.
- 8.1.2 Where the nutrient budget calculation identifies an increase in nitrogen arising from the Proposed Development, this increase must be fully offset to demonstrate that the proposal would not contribute to further eutrophication or associated deterioration in ecological condition.
- 8.1.3 Mitigation is therefore necessary to enable the competent authority to conclude, on the basis of objective information and in line with the precautionary approach of the Habitats Regulations, that the Proposed Development would not adversely affect the integrity of the relevant habitat site.
- 8.1.4 As set out in Natural England guidance [Ref 3], nutrient neutrality measures are intended to avoid the effects of additional nutrient inputs, rather than compensate for damage after it has occurred. Accordingly, where the calculated nitrogen burden is positive, mitigation must be secured in sufficient quantity to ensure that the overall effect of the Proposed Development is neutral in nutrient terms and that no additional nutrient pollution is introduced to the receiving catchment.

8.2 Nutrient mitigation for the Proposed Development

- 8.2.1 The Proposed Development plans to mitigate for the net increase in nitrogen from land use change through either onsite or offsite measures, or a combination thereof.
- 8.2.2 It is considered that land fallowing could be used as the primary measure to mitigate for nutrient impacts from the Proposed Development. Land fallowing is the removal of land from active agricultural production, thereby reducing nutrient inputs associated with fertiliser application, manure spreading and/or livestock activity. In nutrient neutrality terms, the reduction in nutrient losses from the fallowed land can be used as mitigation where it is demonstrated and secured appropriately.
- 8.2.3 Subject to the type of land to be fallowed and existing nitrogen loading on the area, 0.16ha – 0.80ha of land fallowing may be required to mitigate for the nitrogen impact of the Proposed Development.

8.2.4 While land fallowing is currently proposed as the preferred mitigation approach, alternative mechanisms may be utilised, including the purchase of nutrient credits from an approved mitigation provider or participation in a strategic mitigation scheme. The Applicant will identify and secure suitable nutrient mitigation prior to commencement of operation of the Proposed Development. The details of the mitigation strategy, including the location, nutrient reduction calculations and delivery mechanism, will be submitted to and approved by the relevant authority through a Requirement in the DCO. A range of established mitigation options are available within the catchment, including nutrient credit schemes and off-site mitigation projects, providing confidence that the required nutrient reductions can be secured. Early engagement with Natural England is required to confirm that the proposed mitigation approach is acceptable and can be secured in a manner that satisfies the requirements of the Habitats Regulations [Ref 5] and nutrient neutrality guidance [Ref 3].

8.3 Conclusions

8.3.1 This Nutrient Neutrality Assessment considers the potential for the Proposed Development to result in additional nitrogen loading to the Teesmouth and Cleveland Coast SPA and Ramsar nutrient neutrality catchment.

8.3.2 Domestic and sanitary wastewater, along with other off-site transferred waste streams, were screened out of further assessment on the basis that they would be transported for treatment and disposal outside the nutrient neutrality catchment and would not result in an in-catchment nutrient pathway.

8.3.3 The assessment concludes that the only relevant nutrient pathway to the Teesmouth and Cleveland Coast SPA and Ramsar catchment is through land use change. The 15.76ha area of the site where changes to land cover would occur would increase annual nitrogen export from surface water runoff by 11.17kg TN/year. Applying a precautionary uplift of 20%, in accordance with the approach adopted for nutrient neutrality assessment, results in a total nitrogen increase from land use change of 13.40kg TN/year requiring mitigation.

8.3.4 This assessment assumes that the LSO will be operational prior to commencement of operation of the Proposed Development. Should the LSO not be available at that time, any alternative discharge arrangement would need to be assessed and any resulting nutrient impacts appropriately mitigated to demonstrate nutrient neutrality. The Proposed Development would not become operational until the necessary mitigation measures had been secured and implemented.

References

- Ref 1 UK Government (2008) Planning Act 2008. Available online: <https://www.legislation.gov.uk/ukpga/2008/29/contents>. [Accessed June 2026]
- Ref 2 Planning Inspectorate (2026) Lighthouse Green Fuels Project (DISCONTINUED) – Project Information. National Infrastructure Planning website. Available at: <https://national-infrastructure-consenting.planninginspectorate.gov.uk/projects/EN010150> [Accessed June 2026]
- Ref 3 Natural England (2022) Nutrient Neutrality Generic Methodology. Available online: <https://publications.naturalengland.org.uk/publication/5143927928913920> [Accessed August 2026]
- Ref 4 Natural England (2024) Teesmouth SPA, Ramsar: nutrient neutrality calculator. Available online: <https://www.gov.uk/government/publications/teesmouth-spa-ramsar-nutrient-neutrality-calculator> (Accessed June 2026)
- Ref 5 The Conservation of Habitats and Species Regulations 2017 (SI 2017/1012) (as amended). London: The Stationery Office. Available online: <https://www.legislation.gov.uk/uksi/2017/1012/contents>. [Accessed June 2026]
- Ref 6 Natural England (2024) Natural England Water Quality and Nutrient Neutrality Advice (16 March 2022) (NE785). Available online: <https://publications.naturalengland.org.uk/publication/4792131352002560> [Accessed June 2026]
- Ref 7 Environment Agency (2026) Catchment Data Explorer. Available online: <https://environment.data.gov.uk/catchment-planning/> [Accessed June 2026]
- Ref 8 Cranfield University (2026) Soilsclapes Soil Types Viewer. National Soil Resources Institute. Available online: <https://www.landis.org.uk/soilsclapes/> [Accessed June 2026]
- Ref 9 UK Centre for Ecology & Hydrology (2026) National River Flow Archive: Station 25005. Available online: <https://nrfa.ceh.ac.uk/data/station/spatial/25005> [Accessed June 2026]
- Ref 10 British Geological Survey (2026) UK Soil Observatory: Nitrate Vulnerable Zones (England). Available online: <https://mapapps2.bgs.ac.uk/ukso/home.html?layers=NVZEng> [Accessed June 2026]

Annex A: Natural England Nutrient Neutrality Calculator

Inset 2 below sets out the estimated baseline annual nutrient export from the 15.79ha site, as inputted into Natural England's Nutrient Neutrality Calculator.

Inset 3 below sets out the estimated post-development annual nutrient export from the 15.79ha site, as inputted into Natural England's Nutrient Neutrality Calculator.

Inset 4 below sets out the final calculated nutrient budget from the 15.79ha site, as outputted from Natural England's Nutrient Neutrality Calculator.

Inset 2 Estimated baseline annual nutrient export from the 15.79ha site, as inputted into Natural England's Nutrient Neutrality Calculator

Nutrients from future land use		
This sheet contains one table. Note: You will need to fill in cells A5 to A21 and B5 to B21. Cells B22 and C5 to C22 are automatically generated calculations and will state '0.00' unless the user inputs have been entered. Row 22 is a Total Row. The Total Row states 'Totals:' in cell A22 and automatically calculates the total sum of cells B5 to B21 in cell B22 and C5 to C21 in cell C22. How to fill in the table 'Future land uses' Cells A5-A21: Choose the future (post-development) land use type(s) of landcover present on the new site from the dropdown list Cells B5-B21: Enter the area in hectares of each land use type. The nutrient load from future land uses is shown in cells C5 to C21 for total nitrogen (TN). The total nutrient load from future land uses is shown in cell C22 for TN.		
Future land uses		
New land use type(s) - user inputs required	Area (ha) - user inputs required	Annual nitrogen nutrient export (kg TN/yr)
Commercial/industrial urban land	15.76	91.02
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
Totals:	15.76	91.02

Inset 3 Estimated post-development annual nutrient export from the 15.79ha site, as inputted into Natural England's Nutrient Neutrality Calculator.

Final nutrient budgets

This worksheet contains one table. This table is automatically populated using the outputs from the previous worksheets.

Note: You do not need to fill in any cells in the table. Cells B5 to B8 and cells B10 are automatically calculated and will state '0.00' unless the user inputs have been entered to all of the required worksheets. Cells A11 to A14, cell B12 and cell B14 are automatically generated and will state 'Not applicable' depending on the user inputs to the worksheet 'Nutrients_from_wastewater'. Cell B9, B11 and B13 are intentionally blank.

This table presents calculations that underpin the final annual nutrient budget for the development site. Up to 3 values for the nutrient budget may be presented in cells B10, B12 and B14 for total nitrogen (TN).

Total nutrient budget calculations

Description of values generated	Values generated
Wastewater TN load (kg TN/year):	0.00
Net land use TN change (kg TN/year):	11.17
TN budget:	11.17
TN budget + 20% buffer:	13.40
Annual nutrient budget	
The total annual nitrogen load to mitigate is (kg TN/yr):	13.40
Not applicable	
Not applicable	Not applicable
Not applicable	
Not applicable	Not applicable

Inset 4 Final calculated nutrient budget from the 15.79ha site, as outputted from Natural England's Nutrient Neutrality Calculator.



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