



SEPTIC TANK UPGRADE

STRATEGIC FRAMEWORK

STOUR ENVIRONMENTAL CREDITS LTD

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Water Environment Limited
6 Coppergate Mews
103 Brighton Road
Surbiton
London
KT6 5NE

Tel: 020 8545 9720

www.WaterEnvironment.co.uk

Authorisation and Version Control

Water Environment was commissioned by Stour Environmental Credits Ltd to compose a Strategic Framework to set out the overarching structures under which the Septic Tank Upgrade scheme will operate in order to secure robust nutrient mitigation credits.

Author:	Caroline Pericleous PhD, MSc, MEng	
Checker:	Guy Laister MSc Eng BSc Eng (Civil) CEng CEnv C.WEM MCIWEM	
Approver:	Guy Laister Director	

for and on behalf of Water Environment Limited

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EXECUTIVE SUMMARY

Stour Environmental Credits (SEC) Limited is a not-for-profit company established between Ashford Borough Council and Canterbury City Council, with the purpose of investing in nutrient mitigation schemes, creating nutrient mitigation credits, and selling them to developers to facilitate nutrient neutral developments.

A well-established method of nutrient mitigation is to upgrade septic tanks and standard Package Treatment Plants (PTPs) to high efficacy PTPs – referred to as a Septic Tank Upgrade (STU). However, while the technical delivery is often straightforward, the legal arrangements required to legally secure the mitigation over an appropriate time period are more complex, and consideration of procurement, compliance standards, and long-term monitoring and enforcement is required.

To facilitate the upgrade of septic tanks to high efficacy PTPs at pace and scale across the catchments impacted by Nutrient Neutrality, and to secure the subsequent generation of nutrient mitigation credits, SEC has developed a Strategic Framework under which the scheme will operate. This framework will enable a consistent, well documented approach to upgrading septic tanks that has undergone review and approval by Natural England (NE) and the relevant Local Planning Authorities (LPA). It is intended that a septic tank upgrade that has been undertaken in accordance with the framework will generate robust nutrient mitigation credits, and that these credits can then be traded for use as offsite mitigation in respect of new housing development (overnight accommodation) across the catchments.

The purpose of this Strategic Framework is to set out the overarching structures under which the Septic Tank Upgrade scheme will operate in order to secure robust nutrient mitigation credits. The main text provides description of the framework process and the roles and responsibilities of the various stakeholders, from initial survey, to installation, and finally monitoring and enforcement. Included in the appendices are further details and examples of the various documents required for each stage of an individual septic tank upgrade.

This document will act as a resource for stakeholders to understand the scheme as a whole and access the required information to carry out individual septic tank upgrades.

GLOSSARY

Acronym	Definition
Building Control Body (BCB)	The role of checking that building regulations are being complied with falls to Building Control Bodies. There are two types of BCB – Local Authority building control and private sector Approved Inspector building control.
Briefing Letter	A briefing letter written from SEC which sets out details of the STU scheme, how and why it is happening.
Catchment Area	The fluvial catchment area of the River Stour.
Commercial Agreement	Agreement between SEC and the Provider for the purchase of phosphorus and nitrogen credits.
Completion Notice	The notice submitted by the Property Owner to the Council confirming that the Septic Tank Upgrade has been completed.
Cooperation Agreement	Legal agreement between the LPAs who are Members of SEC and SEC detailing how SEC will curate, report, and act on data regarding septic tank upgrades and the monitoring of annual PTP servicing. Also securing cross-boundary enforcement activity by LPAs, recognising LPAs may be relying on mitigation from a septic tank upgrade outside their administrative boundary when determining a Planning Application.
Credit Purchase Agreement and Certificate	Legal agreement between SEC and Developer detailing terms and conditions of credit purchase.
Drainage Field	Drainage apparatus by which treated effluent from a PTP is transferred to the ground, to soak away. Normally comprising a horizontal array of drainage pipes installed below ground surface at the outlet of the PTP.
Habitats Regulations	The Conservation of Habitats and Species Regulations 2017.
Habitats Regulations Assessment (HRA)	An Appropriate Assessment undertaken by a Competent Authority, as required by the Habitats Regulations, to provide an objective and scientific assessment of how a proposed project may affect the qualifying features and conservation objectives of a recognised protected European site.
Initial Monitoring Period	A period of monitoring after installation of a PTP, in accordance with the manufacturer's instructions, during which the performance of the PTP is verified by the Provider.
Likely Significant Event (LSE)	Any effect that may reasonably be predicted as a consequence of the plan or project that may affect the conservation objectives of the features for which a site was designated.
Local Planning Authority (LPA)	Local government body that is empowered by law to exercise urban planning functions for a particular area.
Management Period	A period of 90 years from the date of the Completion Notice
Monitoring Fee	A sum to be paid by the Property Owner as a contribution towards the cost of monitoring compliance with this Deed.
Stour Environmental Credits (SEC)	Not-for-profit company established between Ashford Borough Council and Canterbury City Council with the purpose of investing in nutrient mitigation schemes, creating nutrient mitigation credits and selling them to developers to facilitate nutrient neutral developments.
Property	The Property at which a septic tank is located.
Property Assessment	An assessment prepared by or on behalf of a provider assessing a Property's appropriateness for a STU.
Property Owner	Owner(s) of the property, the septic tank and the replacement PTP.

Property PTP Specification	The detailed specification for the installation and management of the Property PTP which is appended to the UU.
Provider	Organisation or individual responsible for implementing septic tank upgrades and selling the resulting nutrient mitigation credits to SEC.
PTP	The new Package Treatment Plant installed at a Property. A system for treating sewage effluent, producing a treated effluent which is then discharged to ground via a drainage field, or to a receiving watercourse.
Required Documentation	Documents provided to SEC by a Provider which, in respect of each Property, include the following: <ul style="list-style-type: none"> the UU completed by the Property Owner, mortgagee and anyone with an interest with the Property; the Property Assessment; TMR (with the PTP manufacturer's certificate appended) completed by a competent expert detailing the STU for each Property and the associated amount of nutrient mitigation credits generated by the STU; and a redacted copy of the STU Contract (to include details of the transfer of the Savings generated by the STU).
Septic Tank	The underground structure or other plant which is used to treat Urban Waste Water from a Property. Settling and anaerobic digestion processes reduce solids and organics; a treated effluent is discharged to ground or a receiving water course (although this latter arrangement is no longer legal); the tank requires periodic desludging to remove solid waste.
Service Contract	A contract between the Property Owner and the Service Engineer to service and maintain the PTP, after the Initial Monitoring Period. The Provider may also be the Service Engineer.
Service Engineer	A person who <ul style="list-style-type: none"> is suitably qualified and can demonstrate competence for the purposes of carrying out and completing a Septic Tank Upgrade and fulfilling the management and maintenance requirements for the Property PTP under a Service Contract; and maintains an appropriate insurance policy at all times for the purposes of fulfilling the Septic Tank Upgrade and the Service Contract.
Shadow Strategic Appropriate Assessment (SSAA)	SEC framework document laying out how SEC operates to facilitate the development and sale of nutrient mitigation credits across the Stour Catchment in accordance with the Habitats Regulations and Natural England's Nutrient Neutrality Principles, involving a variety of different nutrient mitigation schemes.
Standard STP	A package treatment plant that does not have high efficacy nutrient removal.
STU	The upgrade of a Septic Tank to a high-efficacy nutrient removal PTP.
STU Contract	Legal contract between the Property Owner and the Provider stating the terms under which the Provider will install a new PTP to replace a Septic Tank (or other plant) in return for the generated phosphorus and nitrogen credits.
Technical Mitigation Framework (TMF)	A framework laying out the technical evidence, regulatory requirements and methodology required to enable nutrient credit generation from the upgrade of a septic tank to a PTP.
Technical Mitigation Report (TMR)	Report produced by the Provider for each septic tank upgrade detailing how the tank meets the suitability criteria, the calculation for nutrient mitigation and the installation details.

Total Nitrogen (TN)	This is the sum of all nitrogen forms, including ammonia nitrogen, organic nitrogen, nitrate, and nitrite in water bodies.
Total Phosphorus (TP)	This is the sum of all phosphorus forms including orthophosphate, polyphosphate and organic phosphorus in water bodies.
Unilateral Undertaking (UU)	A deed entered into by the Property Owner to establish the ongoing responsibility of the Property Owner in regard to servicing and maintaining the upgraded PTP. The UU is made out in favour of the LPA for the area in which the Property is located.
Unilateral Undertaking side letter	Confirmation from SEC to the Property Owner stating that the SEC will cover the payment of admin and monitoring fee to the LPA as set out in the UU.

1 INTRODUCTION

Background

- 1.1 Stour Environmental Credits Limited (SEC) is a not-for-profit company established between Ashford Borough Council and Canterbury City Council, with the purpose of investing in nutrient mitigation schemes, creating nutrient mitigation credits, and selling them to developers to facilitate nutrient neutral developments.
- 1.2 A well-established method of nutrient mitigation is to upgrade septic tanks and standard Package Treatment Plants (PTPs) to high efficacy PTPs. However, while the technical delivery is often straightforward, the legal arrangements required to legally secure the mitigation over an appropriate time period are more complex, and consideration of procurement, compliance standards, and long-term monitoring and enforcement is required.
- 1.3 To facilitate the upgrade of septic tanks to high efficacy PTPs at pace and scale across the catchments impacted by Nutrient Neutrality, and to secure the subsequent generation of nutrient mitigation credits, SEC has developed a Strategic Framework under which the scheme will operate. This framework will enable a consistent, well documented approach to upgrading septic tanks that has undergone review and approval by Natural England (NE) and the relevant Local Planning Authorities (LPA). It is intended that a septic tank upgrade that has been undertaken in accordance with the framework will generate robust nutrient mitigation credits, and that these credits can then be traded for use as offsite mitigation in respect of new housing development (overnight accommodation) across the catchments.

Purpose of this report

- 1.4 The purpose of this Strategic Framework is to set out the overarching structures under which the Septic Tank Upgrade scheme will operate in order to secure robust nutrient mitigation credits. The main text provides description of the framework process and the roles and responsibilities of the various stakeholders, from initial survey, to installation, and finally monitoring and enforcement. Included in the appendices are further details and examples of the various documents required for each stage of an individual septic tank upgrade.
- 1.5 This document will act as a resource for stakeholders to understand the scheme as a whole and access the required information to carry out individual septic tank upgrades.

Strategic documents

- 1.6 The Septic Tank Upgrade scheme is part of SEC's portfolio of nutrient mitigation solutions. The schemes within the portfolio are listed as a schedule appended to SEC's Shadow Strategic Appropriate Assessment. Appendix A.1 of this Strategic Framework provides a copy of the Shadow Strategic Appropriate Assessment and lays out how SEC operates to facilitate the development and sale of nutrient mitigation credits across areas of the Stour catchment most impacted by Nutrient Neutrality, through a variety of different nutrient mitigation schemes. It also provides a Shadow Habitats Regulation Assessment in respect of the impact new housing development (overnight accommodation) has on the water quality of protected sites.

2 STRATEGIC FRAMEWORK: SEPTIC TANK UPGRADE

Stakeholders

2.1 The following stakeholders have a role in the Framework and upgrade of septic tanks:

- **Property Owner:** Owner of a property and septic tank which will be upgraded, and ongoing owner of the replacement high efficacy PTP.
- **Local Planning Authority (LPA):** The LPA may have a role as the recipient of a Unilateral Undertaking from a Property Owner to secure nutrient mitigation via Septic Tank Upgrade. The LPA is also the competent Authority to undertake Habitat Regulations Assessments, and thereby reviews proposals for nutrient mitigation put forward by developers. The LPA must assess whether the new development is nutrient neutral, and thereby be satisfied that these nutrient mitigation credits are 'creditworthy'.
- **Stour Environmental Credits (SEC):** SEC will generate via STU Upgrade works and / or purchase nutrient mitigation credits from Providers operating under this framework and trade them with Developers, in accordance with the details of this framework.
- **Provider:** Organisation or individual responsible for implementing septic tank upgrades to high efficacy PTP, which retains the nutrient mitigation credits generated and sells them on to SEC¹
- **Developer:** Organisation or individual that purchases nutrient mitigation credits from SEC to mitigate their new development
- **Natural England:** Statutory consultee to the planning process who will need to have confidence the nutrient mitigation credits provided through this Septic Tank Upgrade scheme will offset nutrient loads arising from new overnight accommodation on which they are being consulted through the planning process. Natural England's formal advice on the generation of nutrient mitigation through this Septic Tank Upgrade scheme will be sought.
- **Environment Agency:** Regulator of pollution and existing duties for Property Owners to properly maintain septic tanks and PTPs, and for permitting of tanks that require an environmental permit.

Overview of Process

- 2.2 A summary of how the process will progress is shown in Figure 2-1, with each step briefly detailed below. The roles and responsibilities of stakeholders for each step, along with the documentation required are then summarised in Figure 2-2 and Table 2-1.
- 2.3 A full description of each step is detailed in the following sections.
- 2.4 A Commercial Agreement will be set up between SEC and the Provider, which will set out the terms and conditions under which SEC will purchase phosphorus and nitrogen credits from the Provider. The Commercial Agreement will also set out an agreed volume of nutrient mitigation credits to be delivered and the purchase price (Figure 2-1, Step 1)
- 2.5 It is then the Provider's responsibility to source and contact septic tank owners. The Provider needs to set out clearly the intention of the scheme, the proposed upgrade, the legal obligations that will result from the agreement, and the ongoing responsibilities. An Agreement in Principle to proceed needs to be obtained from the Property Owner (Figure 2-1, Step 2). A DRAFT Briefing Letter (see Appendix A.2) has been provided by SEC to support this initial homeowner engagement.

¹ Note that in some cases, for example landed estates, the Provider may also be the Property Owner. In this case, the process followed may be streamlined in discussion with SEC as part of drawing up the Commercial Agreement.

- 2.6 Following this Agreement in Principle, a survey will be carried out by the Provider to verify the eligibility of the current septic tank for an upgrade. A Technical Mitigation Report will be produced to detail the results of the survey, and to calculate the amount of nutrient mitigation generated by the tank upgrade (Figure 2-1, Step 3, covered in detail in Section 3 of this report).
- 2.7 Once eligibility has been confirmed, a Unilateral Undertaking will be entered into by the Property Owner, to establish the ongoing responsibility of the Property Owner in regard to servicing and maintaining the upgraded PTP. The UU will include a Plan of the property including the Land Registry title number, and will be in favour of the LPA. There will also be a legal agreement between the Property Owner and the Provider (STU Contract) which will lay out the terms under which the Provider will upgrade the tank in return for transfer of the nutrient mitigation credits. SEC will confirm to the Provider their acceptance of the nutrient mitigation credits generated from the upgrade, giving regard to the location of the septic tank and the known demand for nutrient mitigation credits. This is step 4 of Figure 2-1, and is covered in detail in Section 4.
- 2.8 Once the legal agreements are in place, installation will then be carried out as detailed in the Technical Mitigation Report (Figure 2-1, Step 5). This will include percolation tests to finalise the design of the PTP and drainage field (where a drainage field is required), carried out by the Provider.
- 2.9 Package Treatment Plants (PTPs), in common with all new private sewage treatment systems, are controlled under Building Regulations, and it is therefore a requirement that all new PTPs are checked and approved by a registered Building Control Body (BCB). Once the installation has been carried out, Building Control will check and sign off the installation (Figure 2-1, Step 6). This will provide further assurance, in addition to the TMR, that the PTP will function in accordance with the manufacturer's instructions and generate valid nutrient mitigation credits.
- 2.10 Once the STU is complete, the Provider will issue SEC with a Completion Notice, which will include the Buildings Regulations Certificate for the STU.
- 2.11 Nutrient mitigation Credits generated from the scheme will be aggregated by SEC into 'credit pools' (based on the geographic location of the upgraded septic tanks) and developers will be able to purchase the credits from SEC (Figure 2-1, Step 7, covered in Section 5). The process by which SEC operates to facilitate the development and sale of nutrient mitigation credits across the Stour catchment, involving a variety of different nutrient mitigation schemes, is set out in the Shadow Strategic Appropriate Assessment (SSAA, Appendix A.1). Natural England and the Local Planning Authorities will be consulted in relation to SEC's Shadow Strategic Appropriate Assessment as the document helps provide confidence to NE, the LPAs and developers that the nutrient mitigation credits generated/traded by SEC are robust and will be appropriately accounted for.
- 2.12 It is important that nutrient mitigation credits are used in the same catchment in which they were generated. However, the LPA boundaries are not co-terminus with catchment boundaries, and it is possible that a nutrient credit can be generated in one LPA area and used in another LPA area. A Cooperation Agreement between the LPAs will allow cross LPA-boundary enforcement and trading of nutrient mitigation credits (Figure 2-1, Step 8). More detail is given in Section 5.
- 2.13 The nutrient mitigation credits generated by the scheme are required to be valid for 90 years. It is therefore imperative that the PTPs are maintained and serviced correctly, and replaced as required with no degradation of nutrient removal, if they no longer perform adequately. It is an existing legal requirement to operate and maintain a PTP in accordance with the manufacturer's instructions, and to regularly empty it of sludge. Under this Framework, an initial period of monitoring is required during which the effective operation of the plant is demonstrated, followed by long-term monitoring (and where required, enforcement) of servicing and maintenance activities, for the Management Period (90 years from the date of the Completion Notice). The UU sets out the requirements for the Property Owner to maintain and upgrade the PTP under this framework.

2.14 Further details on the initial monitoring, and long-term monitoring and enforcement mechanisms is discussed in detail in Section 6. The long-term monitoring will be curated by the SEC, with a duty falling on the Property Owner to provide the relevant monitoring information (Figure 2-1, Step 9).

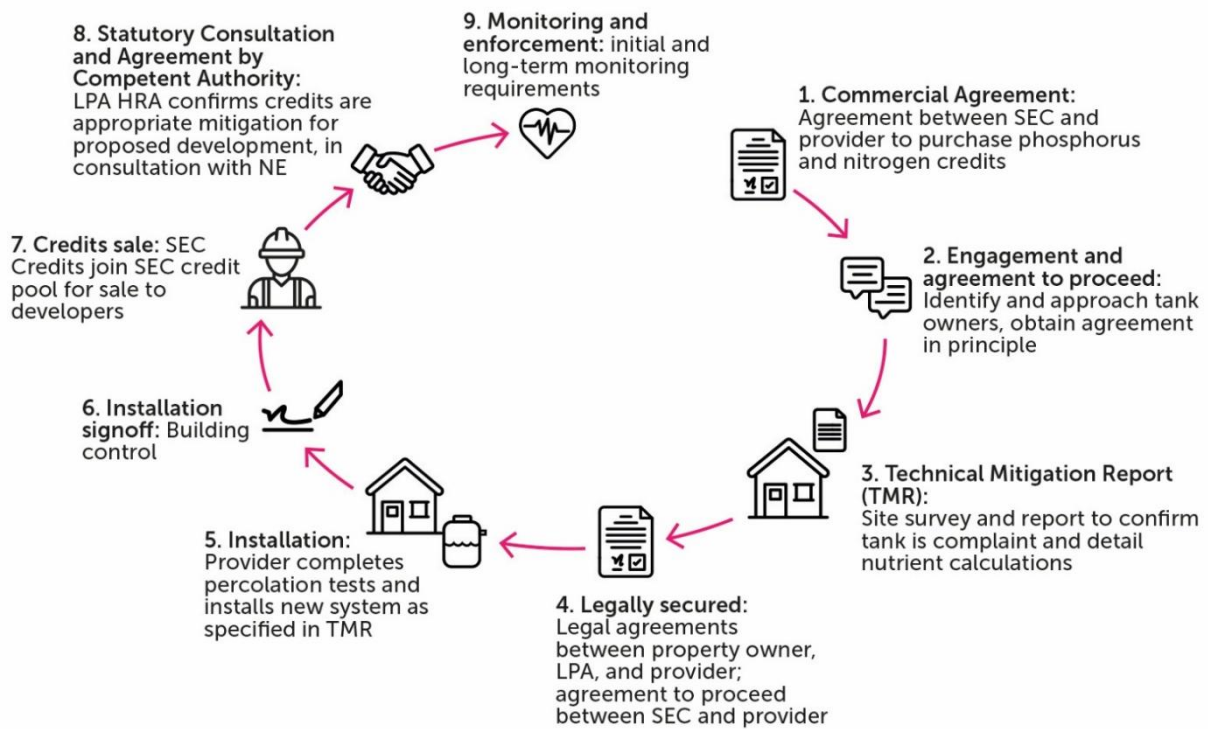


Figure 2-1: Summary of the septic tank upgrade workflow

Roles and responsibilities

2.15 The roles and associated responsibilities for carrying out the above steps are detailed in Table 2-1. The required documentation for each stage is also detailed. Templates of these documents are included in the Appendices where appropriate.

2.16 Figure 2-2 shows schematically how all the parties are linked and the required documentation that underpins the Strategic Framework.

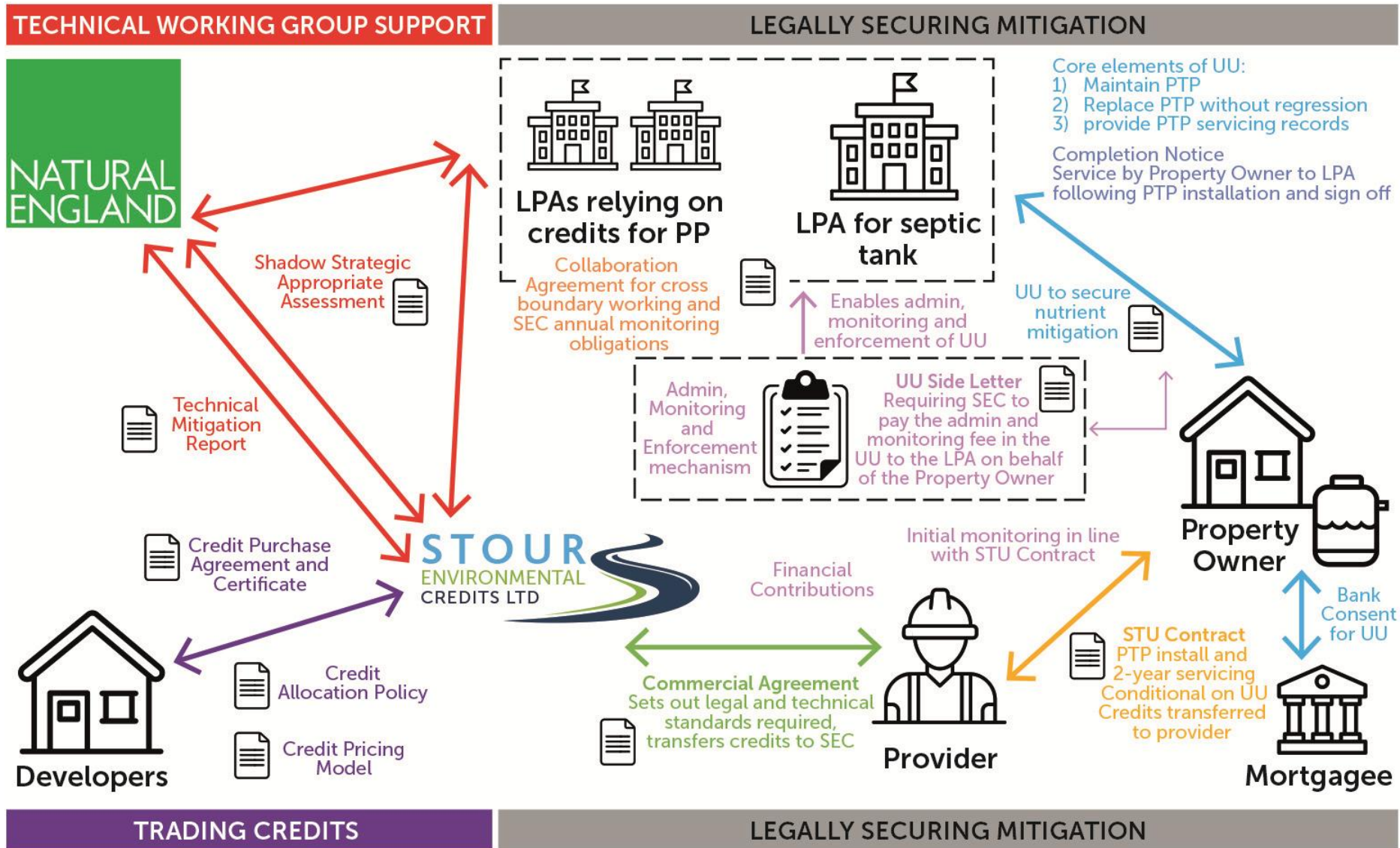


Figure 2-2: Septic Tank Upgrade Framework
 Document reference | 24122-NUT-RP-01 C01

Table 2-1: Roles and responsibilities

Stage of process	Parties	Key responsibilities	Required documentation
1. Commercial Agreement	Provider and SEC	Agreement between SEC and the Provider that lays out the terms and conditions under which SEC will purchase phosphorus and nitrogen credits from the Provider.	Commercial Agreements
2. Engagement and agreement to proceed	Provider and Property Owner	Identify and approach tank owners. Secure access, agree contract terms for upgrade and transfer of nutrient mitigation credits to the Provider	Agreement in Principle
3. Survey and Technical Mitigation Report	Provider and Property Owner	Assure suitability for installation and validity for credit generation. To include assessment of the septic tank, current nutrient loading, discharge location and access constraints. The TMR also provides evidence of the number of nutrient mitigation credits generated by the upgrade.	Technical Mitigation Report (TMR) as laid out in Technical Mitigation Framework (TMF) (Section 7)
4. Legal agreements	Property Owner and LPA;	Unilateral Undertaking securing nutrient mitigation credits and detailing ongoing responsibility of the Property Owner regarding servicing and maintenance.	Unilateral Undertaking (UU) (Appendix A.3)
	Property Owner and Provider;	Agree for transfer of nutrient mitigation credits to the Provider upon tank installation and verification.	STU Contract
	SEC and Property Owner;	Payment of admin and monitoring fee to the LPA	UU Side letter (Appendix A.4)
	SEC and LPA	Provision and maintenance of a database of septic tank upgrades, with annual reporting to the LPA. Contact with Property Owner if annual service report not provided.	Cooperation Agreement

4a. Agreement to proceed	Provider and SEC	SEC review the Required Documentation submitted by the Provider (UU/TMR/STU Contract) and provide Approval as appropriate.	Technical Mitigation Report (TMR) Unilateral Undertaking (UU) STU Contract (redacted)
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Stage of process	Parties	Key responsibilities	Required documentation
5. Installation	Provider	Percolation tests are carried out to finalise design. System and associated infrastructure is installed to British Standards and manufacturers specification.	As detailed in the Technical Mitigation Framework
6. Sign-off/verification	Building Control Body and Property Owner/Provider	Confirm installation meets industry standards. The duty to obtain Building Control approval is with the Property Owner, however this may have been conferred to the Provider as part of the STU Contract. A Completion Notice is prepared including the Building Control Certificate; the Provider is obliged to send the Completion Notice to SEC, and the Property Owner is obliged to send the Completion Notice to the LPA.	Completion Notice Building Control Certificate
7. Nutrient Mitigation Credits sale	SEC to developer	Technical and legal documentation required to verify creditworthiness	Credit Purchase Agreement and Certificate (Appendix A.5) Copy of TMR and SSAA
8. Statutory Consultation and agreement by LPA²	LPA / NE	Confirm mitigation solution meets Appropriate Assessment requirements	SSAA for proposed development; TMR; and Cooperation Agreement for cross boundary working (Appendix A.6)

² The LPA is the Competent Authority under the Habitats Regulations Assessment

9. Monitoring and enforcement	SEC LPA	Cooperation Agreement between LPAs and SEC gives monitoring role to SEC and allows LPAs to enforce compliance with a UU where the credits have been used in another LPA area. SEC to monitor LPA to enforce	Service Contract MOT style check to demonstrate compliance with the required PTP maintenance regime.
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3 SEPTIC TANK ASSESSMENT AND VERIFICATION

- 3.1 The septic tank upgrade Technical Mitigation Framework (TMF) (Section 7) has been prepared to demonstrate the process of making sure a septic tank is suitable for upgrade, how to calculate the value of the upgrade and how to install and ensure that the new PTP will be comply with British Standards and be appropriately maintained. A brief summary of the TMF content is provided below.

Eligibility Assessment

- 3.2 The first part of the process is an eligibility assessment. This needs to be undertaken to ensure that the septic tank(s) identified for upgrades will have the sufficient benefit once upgraded. The eligibility assessment is broken down into two parts: the septic tank survey and the PTP options appraisal.
- 3.3 There are several factors that impact whether nutrient credits can be gained from the upgrade of a septic tank. The septic tank survey assesses these factors, including the type of properties that the tanks serve, where it will discharge, quality of the tank, permitting requirements, and small-scale discharge criteria.
- 3.4 High efficacy PTPs can be biological systems or chemically dosed systems. Only biological systems are included in this Framework (although alternative systems may be considered on a bespoke basis outside of this Framework). The new PTP must be installed by a competent PTP installer.

Nutrient calculations

- 3.5 The method by which the number of nutrient mitigation credits generated by the tank upgrade is calculated is set out and evidenced in the Technical Mitigation Framework (Section 7). The parameters and coefficients that can be used are explained within the section in detail.

Installation

- 3.6 On installation, the new PTP will comply with current British standards (BS EN 12566³) and shall be installed in compliance with current building regulations (Building Regulations Part H2⁴).

Servicing and maintenance requirements

- 3.7 The servicing and maintenance of the new PTP are crucial to ensure that it functions correctly, and that nitrogen and phosphorus remain below the required levels. The servicing and maintenance must be in line with the manufacturer's recommendation. Further detail on maintenance reporting and enforcement is included in Section 6.

³ British Standards Institution (2025) *BS EN 12566 – Small wastewater treatment systems for up to 50 PT*.

⁴ Building Regulations (2010) Approved Document H: Drainage and Waste Disposal, Part H2: Wastewater treatment systems and cesspools.

4 LEGALLY SECURING MITIGATION

Commercial Agreement

- 4.1 This agreement sets out the transfer of nutrient mitigation credits between the Provider and SEC, the commercial relationship between the parties and associated obligations. It also provides for SEC to confirm to the Provider their acceptance of the nutrient mitigation credits generated from the upgrade, having specific regard to the location of the septic tank and the known demand for nutrient mitigation credits.

Unilateral Undertaking

- 4.2 The Unilateral Undertaking (UU) is a legal deed entered into by the Property Owner. The UU sets out the legal obligation of the Property Owner to upgrade the septic tank as specified in the TMF, and to carry out the required maintenance for the duration of the management period. The management period is 80 years from the date of completion. During this period the Property Owner must:

- operate and maintain the Property PTP in accordance with the Property PTP Specification and ensure that its operation meets the level of phosphorus mitigation and nitrogen mitigation indicated in the Technical Mitigation Report;
- not to do anything which may cause or permit the Property PTP to function less effectively or cease functioning;
- procure and maintain a Service Contract with a Service Engineer for the management and maintenance of the Property PTP (a "Service Contract"), and notify the LPA if they terminate the service contract and enter into a replacement service contract;
- keep an up-to-date record of all maintenance and monitoring undertaken, and send records to the LPA (or another body nominated by the LPA) annually;
- provide any other information reasonably required by the LPA relating to the Septic Tank Upgrade and the management and maintenance of the Property PTP;
- remedy any failures of the PTP within 30 Working Days of becoming aware of such failure; and
- renew or replace the PTP at the end of its operational life with an alternative package treatment plant which provides at least the same level of phosphorus mitigation and nitrogen mitigation, and to seek approval for the replacement PTP from the LPA prior to installation.

- 4.3 The Property Owner also undertakes:

- not to carry out the Septic Tank Upgrade unless and until the Required Documentation has been submitted to SEC
- to submit the Completion Notice to the Council within 10 Working Days after the completion of the Septic Tank Upgrade
- to pay the Monitoring Fee to the Council within 10 Working Days after the submission of the Completion Notice (see 4.4 below)

Unilateral Undertaking Side letter

- 4.4 Under the Unilateral Undertaking, the Property Owner is responsible for an upfront fee (the Monitoring Fee) to the LPA. The fee will contribute towards the LPAs costs of administration, monitoring and investigation and resolution of breaches, and reflects the legal arrangements with the LPAs and SEC which places the burden of curating monitoring data to SEC. The fee will also be reviewed in the early stages of the Framework and annually thereafter at the absolute discretion of the LPA.
- 4.5 The Unilateral Undertaking Side Letter transfers the responsibility for this cost from the Property Owner to SEC.

STU contract

- 4.6 The STU Contract operates between the Provider and the Property Owner and stipulates that the Provider will replace the existing septic tank with a PTP as laid out in the TMR. The Provider will also carry out a period of initial servicing and monitoring, in line with the manufacturer's instructions, and compliant with the details of the UU (the Initial Monitoring Period). The Property Owner will transfer the nutrient mitigation credits secured through the UU to the Provider.

Required Documentation

- 4.7 The Commercial Agreement with between SEC and the Provider establishes that the Provider will provide SEC with:
- 4.8 the UU completed by the Property Owner, mortgagee and anyone with an interest with the Property;
- 4.9 the Property Assessment: TMR (with the PTP manufacturer's certificate appended) completed by a competent expert detailing the STU for each Property and the associated number of nutrient mitigation credits generated by the STU; and
- 4.10 a redacted copy of the STU Contract (to include details of the transfer of the Savings generated by the STU).
- 4.11 Once SEC has approved these documents, the Provider can proceed to install the new PTP.

5 CREDIT PURCHASE AGREEMENT AND CERTIFICATE

- 5.1 Following verification of PTP installation and Building Control sign off, the nutrient mitigation credits will enter the SEC credit pool and will be available for purchase by developers.
- 5.2 To provide a precautionary buffer to cover for the eventuality of some PTP upgrades not being appropriately maintained and to allow for variability in any assumptions, SEC will only trade 90% of the total nutrient mitigation credits generated from each PTP upgrade. This buffer may be reduced or released for sale once SECs broader portfolio of mitigation schemes is established across the catchments.
- 5.3 The nutrient mitigation credits will only be offered to developers where the development is in the same catchment as the upgraded septic tank.

Credit purchase Agreement and Certificate

- 5.4 The Credit Purchase Agreement and Certificate allows for the transfer of nutrient mitigation credits from SEC to a Developer. This applies to nutrient mitigation credits from a range of nutrient mitigation schemes and is detailed more fully in the SEC Shadow Strategic Appropriate Assessment (Appendix A.1).

Cooperation Agreement

- 5.5 The Cooperation Agreement is an agreement between Ashford Borough Council and Canterbury City Council. This will provide a reciprocal agreement enabling each LPA to enforce any non-compliance of the obligations placed upon homeowners within their administrative boundary, even if that LPA is not reliant on nutrient mitigation credits generated from those upgrades. It provides the enforceability of the mitigation to the LPA to allow the nutrient mitigation credits to be used for mitigation where the development is in a different LPA to the mitigation site, but still within the Stour catchment. The agreement will also set out the annual monitoring obligations that SEC will undertake on behalf of the LPAs.

6 ONGOING ADMIN, MONITORING, AND ENFORCEMENT MECHANISMS

Property Owner responsibilities

- 6.1 Under the UU the Property Owner is responsible for supplying service records to the LPA. In practice this will be administered by SEC, with the Property Owner or appointed PTP service Provider submitting the service verification to SEC. The details of the service requirements will be based on manufacturer recommendations and will be detailed in the Unilateral Undertaking (Appendix A.3).
- 6.2 The Property Owner is also responsible for carrying out any required maintenance, upgrades, or PTP replacement that are necessary throughout the 90-year management period. Any such works must be reported to the LPA as detailed in the UU.
- 6.3 Upon transfer of ownership of the property, the Property Owner is required to inform any potential buyers of the UU. Any new Property Owner will take on the associated maintenance and reporting duties stipulated in the UU, by virtue of acquiring the property.

SEC responsibilities

- 6.4 SEC are responsible for curating and maintaining a database of properties that have had a septic tank upgrade through the scheme. Upon legal securement of mitigation, the property will enter the SEC database. For each property in the database the SEC will collate the following:
 - Property address and owner details;
 - Easting and Northing or Grid Reference of tank (supplied by Provider);
 - Catchment benefiting from the mitigation;
 - The Required Documentation (UU, Technical Mitigation Report (including N & P mitigation provided) and redacted STU contract);
 - The date of the Completion Notice in respect of the tank;
 - PTP installation documents and Building Control sign off;
 - Annual service records; and
 - Additional reported maintenance or replacement works.
- 6.5 SEC is responsible for providing the LPA with the curated data, and of informing LPA of non-compliant tanks. This obligation and the details of reporting requirements are set out with the Cooperation Agreement.

LPA activities

- 6.6 The LPA activities under the framework are:
 - To receive and retain UUs provided by Property Owners;
 - To enforce compliance with a UU where it is evident that a PTP is failing or service records have not been submitted (some or all of this function may be delegated to SEC); and
 - To undertake Appropriate Assessments under the Habitats Regulations for new developments using the nutrient mitigation credits generated under this framework.

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- 6.7 The Cooperation Agreement sets out other activities that the LPAs may undertake with regard to providing information to SEC, and working across LPA boundaries, in order to ensure the smooth and effective functioning of the framework.

7 TECHNICAL MITIGATION FRAMEWORK

Introduction

- 7.1 This section comprises the technical element of the Septic Tank Upgrade Strategic Framework. The objective is to prove clear process, guidance and numerical parameters for the assessment and verification of septic tanks plus the process to calculate the nutrient benefit of the upgrade.
- 7.2 This section also sets out the regulatory requirement to ensure the septic tank is currently operating legally and therefore a valid subject for credit mitigation. Evidence required to confirm the operation and installation of the replacement tank will also be detailed. Of utmost importance are the ongoing monitoring and maintenance required and responsibilities, which are also detailed below.

Eligibility Assessment

- 7.3 The initial requirement is to verify the septic tank's eligibility. This needs to be undertaken to ensure that the septic tank is a legitimate subject from which to generate nutrient mitigation credits. The eligibility assessment is sub-divided into:
- **Qualifying functionality:** this concerns the type of system and the type of property it serves. Information will need to be obtained on whether the existing system is a septic tank or a Package Treatment Plant (PTP), and whether it serves a property with overnight accommodation.
 - **The legality of the existing treatment system:** it must be confirmed whether the system operates within current regulations (General Binding Rules, see Paragraph 7.11) and whether it requires an environmental permit to discharge to the environment.
 - **The area of credit application:** the septic tank must be located a nutrient neutral designated catchment area. Additionally, there may be restrictions on where exactly within the catchment the nutrient mitigation credits can be used to mitigate proposed development.
 - **The small-scale discharge criteria:** these are a set of tests to determine if the phosphorus discharged from a private sewer system, via a drainage field, is deemed likely to reach the surface water and hence the protected site, thereby having a 'Likely Significant Effect' (LSE). A small-scale discharge is not eligible for generating phosphate credits.
- 7.4 The specific steps associated with the above points are described in more detail below.

Septic tanks - confirmation of eligibility

- 7.5 Only specific septic tanks will be eligible for upgrade. Several factors determine whether an existing private sewage treatment system is accepted for upgrade; this includes the type of properties that the tank serves and the type of discharge. This is a critical part of the assessment because if the tank is unsuitable then nutrient mitigation credits cannot be gained from an upgrade.

Properties that provide overnight accommodation

- 7.6 There are several types of property served by septic tanks that can qualify for nutrient credit generation. For septic tank and standard package treatment plant (PTP) upgrades, only those which provide overnight accommodation are currently eligible; these include, residential properties, care homes, hotels, caravan parks, student accommodation and pubs. The exclusion

of systems that are not connected with overnight accommodation is to avoid double counting the impacts of residents that live and work in the same catchment.

Commercial Properties

- 7.7 Natural England has indicated that commercial sewage discharges should not be considered in this Framework. However, if there is clear, documented evidence that the business results in a measurable increase of sewage effluent generated from visitors from outside the boundaries of the catchment, for example a tourist attraction, then these can be considered on a case-by-case basis through Natural England's Discretionary Advice Service (DAS).

Construction

- 7.8 There is no restriction on the composition of the septic tank; for example, these can comprise brick or high-density polyethylene (HDPE). The age of the tank is unimportant from a nutrient credit generation perspective; the key information is the confirmed, or assumed, discharge quality, with respect to nitrogen and phosphorus. However, the discharge method (drainage field or direct discharge to surface water) will have a bearing on the current legality and eligibility of the tank for upgrade (see Paragraph 7.9 below).

Discharge location

- 7.9 Septic tanks and PTPs can discharge to either surface water (e.g. a ditch or river) or to a drainage field. A cesspit is a sealed tank that has no discharge, instead the waste is removed and taken for treatment at a local wastewater treatment works. Currently cesspits are not eligible.
- 7.10 The septic tank's discharge location will need to be understood at survey stage in order to plan the upgrade installation.

General Binding Rules

- 7.11 General Binding Rules (GBR) are a set of regulations that apply to a septic tank or a small sewage treatment plant in England. The purpose of the GBR is to ensure that the sewage treatment plant/septic tank is installed and maintained to the required operational standard, thereby limiting adverse effects on the environment. If an installation does not meet the GBRs, an environmental permit is required.
- 7.12 For a septic tank to be verified as suitable for credit generation it must comprise a legal discharge.
- 7.13 The GBRs are provided on the gov.uk website⁵, however the pertinent rules are provided below:
- A discharge to ground, must have a daily discharge of less than 2m³/day via a drainage field or,
 - A discharge of up to 5m³/day is allowed to surface water.
 - All new septic tanks and package treatment plants will be installed to British Standard with a drainage field designed to BS 6297:2007.
 - As of January 2020, septic tanks must not discharge directly to surface water (this does not include PTPs).
- 7.14 Natural England's advice states that nutrient mitigation credits cannot be generated from illegal activities. In order for a system to be considered for upgrade it must be compliant with current

⁵ Environment Agency (2015) Guidance: General binding rules: small sewage discharge to the ground. GOV.uk website. Available at: [General binding rules: small sewage discharge to the ground - GOV.UK](https://www.gov.uk/guidance/general-binding-rules-small-sewage-discharge-to-the-ground)

regulations. However, stakeholders have agreed that septic tanks that discharge to surface water, making them non-compliant and ineligible, should be encouraged to upgrade. Therefore, in such cases these should be considered as though they were compliant i.e. it will be assumed they are a standard PTP not a septic tank. This results in a credit that has some 80% of the value of that generated from a septic tank. Natural England has indicated that this is the national stance.

Environment Agency (EA) Permitted discharges

7.15 Environmental permits are required for sewage discharges that cannot meet the GBRs. For example, the discharge may exceed the maximum volume stated in the GBRs, or it may relate to the composition of the effluent quality or location of sensitive local features. A permit may be a standard 'off the shelf' permit, or, if the criteria for a standard permit are not met, it will require a bespoke application. Effluent discharges that are permitted can be used for septic tank upgrades. It should be noted that replacement and/or modification of the treatment system is likely to require a variation of the Environmental Permit, and this should be considered at an early stage.

Small-scale discharge criteria

7.16 The small-scale discharge criteria are a set of tests to determine if the phosphorus discharged from a private sewer system, via a drainage field, is likely to reach the surface water and hence the protected site, thereby having a 'Likely Significant Effect' (LSE). The criteria were derived from the Water Quality and Nutrient Neutrality Advice letter provided by Natural England to LPAs in March 2022⁶.

7.17 If a tank meets all of the criteria, the tank is deemed as not having an LSE and therefore not eligible for upgrade. If one of the criteria is not met, then the discharge is considered to have failed the criteria, thereby having a likely significant effect of the protected site and can be upgraded. The small-scale criteria are provided below:

- a) The discharge is less than 2 m³/day.
- b) The drainage field is more than 50 m from the designated site boundary (or sensitive interest feature).
- c) The drainage field is more than 40 m from any surface water feature e.g. ditch, drain, watercourse.
- d) The drainage field is in an area with a slope no greater than 15%.
- e) The drainage field is in an area where the high groundwater depth is always at least 2m below the surface.
- f) The drainage field will not be subject to significant flooding, e.g. it is not in Flood Zone 2 or 3.
- g) There are no other known factors which would expedite the transport of phosphorus for example fissured geology, insufficient soil below the drainage pipes, known sewer flooding, soil/geology conditions that could cause remobilisation of phosphorus, presence of mineshafts, etc.

⁶ Natural England Water Quality and Nutrient Neutrality Advice NE785 (2022) Annex F: Thresholds for Insignificant Effects – Phosphorus Discharges to Ground. Available at: [Natural England Water Quality and Nutrient Neutrality Advice \(16 March 2022\) - NE785](#)

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- h) To ensure that there is no significant 'in combination' effect, the discharge to ground should be at least 200 m from any other discharge to ground.
- i) The percolation test has been performed on the proposed location of the drainage field with the resulting value lying within the required range under the Building Regulations 2010, which specify an average V_p value of between 12 and 100.
- 7.18 It should be noted that these criteria only apply to phosphorus. Nitrogen has significantly higher solubility, and therefore travels more rapidly along various hydrological pathways with less opportunity for attenuation in the environment.
- 7.19 Information resources to help determine the small-scale discharge criteria are provided below:
- 7.20 The collation of data to assess points b) c) d) and h) is based on measurement of distance or elevation; this can be undertaken using various widely available apps e.g. Google Earth, GIS packages (QGIS/ARC GIS). For clarity, the percentage slope (point d)) is calculated as the difference in elevation between two points divided by the horizontal distance between the two points multiplied by 100.
- 7.21 The groundwater level information (Point e)) can be accessed through borehole logs and hydrogeological maps and should be confirmed at installation. Borehole logs can be accessed through the British Geological Survey's GeoIndex portal (<https://mapapps2.bgs.ac.uk/geoindex/home.html>)
- 7.22 Flood zone information (point f)) is readily available from the Environment Agency's Flood Risk for Planning Map (flood-map-forplanning.service.gov.uk).
- 7.23 With regards to point g), consideration of these matters is generally only required if the septic tank meets all the other criteria for small-scale discharge and the underlying geology could be a factor on whether a small-scale discharge is having an LSE or not. Factors that could expedite phosphorus transport include local geology and the presence of features such as mineshafts. The Stour catchment is partially underlain by chalk, which commonly has fissures and fractures which provide hydraulic pathways ('shortcuts') that could expedite phosphorus to surface water. The presence of other less permeable bedrock and/or superficial deposits may reduce access to hydraulic pathways. This criterion is one of the most complicated and technical to assess and it should be undertaken by a qualified hydrogeologist or competent professional.

Tank Survey

- 7.24 The tank survey is required to ensure that the existing septic tank is working properly and suitable for the upgrade. The tank survey should be undertaken prior to the UU being completed. New PTPs that discharge to ground must have a drainage field and be compliant with the regulations for drainage fields at the time of installation.

Survey content

- 7.25 The following list is suggested as a minimum data requirement to be collected during a septic tank survey:
- Location of tank: Address, Postcode;
 - Specific location of septic tank: record as National Grid Reference, or What3words address;
 - Location of and type of discharge: e.g. to ground or surface water;
 - Number of properties served by system;
 - Number of bedrooms in the property/properties served;

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- Inspect and describe existing system e.g. brick septic tank or fibreglass PTP;
 - Confirm compliance with GBR;
 - Confirm potential for electrical connection;
 - Take photographs of tank, access etc.;
 - Percolation tests and groundwater level;
 - Nearest watercourse;
 - Any site information that demonstrates that the site will not meet the small scales discharge criteria.

New tank options

- 7.26 There are two types of high efficacy nutrient removal PTPs: biological systems that utilise aeration to digest nutrients; and chemically dosed systems that use flocculants to precipitate phosphorus.
- 7.27 For any tank that is installed for the purpose of nutrient credit generation, there is a strong preference for biological systems. This is due to a concern that chemically dosed systems may not always be maintained correctly by Property Owners and the potential impact of the chemicals on the sensitive habitats sites. Under this Framework replacement tanks must comprise biological systems.
- 7.28 However, for larger discharges, such as care homes, chemical systems could potentially be accepted on a bespoke basis outside of this Framework, if the system is managed by an independent service provider. These will need to be considered on a case-by-case basis and advice from Natural England to Local Planning Authorities (LPAs) is that they must be confident that the dosing mechanism does not pose any additional risk to water quality beyond nutrient considerations. Systems that use aluminium-based dosing are not acceptable.

8 NUTRIENT CALCULATIONS

Natural England Methodology

8.1 Natural England has developed a generic methodology which sets out the procedure for assessment of the total nutrient load discharged from properties and the process for calculating the nutrient budget for a proposed change. The latest version of the Natural England Generic Methodology (NEGM) was issued in March 2024⁷. Guidance for undertaking appropriate calculations for septic tank upgrades is detailed below.

Step 1: Calculate the population served

8.2 For residential occupancy rates, Natural England recommends using the national average occupancy rate of 2.4 persons/dwelling. This has been determined the use of census data from the Office for National Statistics (ONS). The occupancy rate is multiplied by the number of dwellings to give the expected population. Alternative methods of calculating the expected population are acceptable if sufficient evidence is provided which would need to be agreed with the LPA in the role as Competent Authority.

8.3 For example, Ashford Borough Council have adopted the following occupancy rates:

Table 8-1: Ashford Borough Council occupancy rates for Nutrient Neutrality⁸

Accommodation Type	Population (per bedroom)	Population (per unit)
Dwelling – house		2.4
Dwelling – flat		1.75
Holiday let		2.4
C2/Care home	1.75	
Hotel/B&B	1.75	
House of multiple occupation	1.75	

Step 2: Calculate the daily water usage

8.4 NE guidance recommends using water use as a proxy for total wastewater amount, excluding any garden use. NE's advice is to use the Building Regulations to determine the average water use per person, and then to add 10 litres/person/day (l/p/d) to this value to account for uncertainty in any future changes to fittings.

Residential water usage

8.5 The Building Regulations legal maximum water use per person standard is 125 litres /person/day. The optional higher Building Regulations standard is 110 litres/person/day. Older properties are likely to use more water so the maximum water use standard should be used – giving a total water usage of 125 + 10 = 135 litres/person/day.

8.6 Residential water usage as per the Natural England guidance is linked to planning requirements (For e.g. planning policy or conditions) but where these do not exist, as is likely the case for

⁷ Ricardo and Natural England (February 2022) *Natural England Commissioned Report NECR459: Nutrient Neutrality Generic Methodology (March 2024 Update)*

⁸ <https://www.ashford.gov.uk/planning-and-development/our-planning-policies/environmental-matters/nutrient-neutrality-stodmarsh/nutrient-calculator-mitigation-and-guidance/>

older properties without water efficiency measures, the agreed water usage for an existing dwelling is 135 litres/person/day.

Care Homes, caravanning, hotels, student accommodation, pubs, and camping Water Usage

8.7 In order to calculate the water usage from care homes, it is proposed to use the best available evidence such as water bills. If these are not available, British Water’s Code of Practice for sizing sewage treatment systems, ‘Flows and Loads’⁹ should be used to estimate the water usage. This provides tabular information for loadings and water usage volumes, to enable design of private sewage treatment systems.

Step 3: Calculate the effluent nutrient concentrations

8.8 Nutrient calculations require an estimate of the quality (Total Phosphorus and Total Nitrogen concentrations) of the discharge from the existing septic tank, and the new PTP. For modern PTPs, discharge quality testing is undertaken, and an effluent quality certificate is provided by the manufacturer. Example certificates can be found on the British Water website at: <https://www.britishwater.co.uk/page/Accreditation-Certificationcertified-small-wastewater-treatment-systems-for-up-to-50-pt>.

8.9 In some cases certificates are not available, but the manufacturer can provide water quality testing data. Where there are no water quality testing records, e.g. for older systems, assumptions should be made regarding the effluent quality of these septic tanks.

8.10 Septic tanks and standard PTPs have limited phosphorus and nitrogen removal. The assumed nutrient effluent concentration for these systems is given in the Natural England nutrient budget calculator guidance. Below is a table detailing the assumed effluent discharge quality for septic tanks and standard PTPs.

Table 8-2: Assumed effluent nutrient concentrations for existing septic tanks

	Nitrogen	Phosphorus
Septic tank	96.2 mg/l	11.6 mg/l
Standard PTP	72.9 mg/l	9.7 mg/l

Step 4: Calculate the expected wastewater load

8.11 The wastewater nutrient load is calculated using the following equation:

$$\text{Wastewater Load (kg/year)} = \frac{\text{Population (p)} \times \text{Daily Water Use (l/p/d)} \times \text{Effluent Conc. (mg/l)} \times 365.25 \text{ (d/year)}}{1,000,000 \text{ (mg/kg)}}$$

8.12 Two wastewater loads will be calculated: the original load (from the old septic tank) and the reduced load from the new PTP. The population and daily water use are expected to remain the same, but the relevant effluent concentration should be used.

Step 5: Calculate the number of nutrient mitigation credits generated

8.13 The difference between the wastewater nutrient load before and after the STU equates to the number of nutrient mitigation credits generated. Two worked examples are provided below.

⁹ British Water (2013) Code of Practice BW COP:18.11/14 ‘Flows and Loads – 4: Sizing criteria, Treatment Capacity for Sewage Treatment Systems ISBN 978-1-903481-10-3

Example 1

8.14 Example 1 shows the calculations for a single dwelling with an existing septic tank which discharges to the ground via a drainage field, which will be replaced with a high efficacy PTP.

8.15 This example is for a single dwelling, so using the national average occupancy rate (2.4 persons/dwelling) gives a population of 2.4 persons.

$$\text{Population} = \text{number of dwellings} \times \text{occupancy rate} = 1 \times 2.4 = 2.4 \text{ persons}$$

8.16 The daily water usage is calculated as the building regulations standard plus an additional 10 l/p/d, giving 135 l/p/d.

$$\text{Daily water use} = \text{building regulations standard (l/p/d)} + 10 \text{ l/p/d} = 135 \text{ l/p/d}$$

8.17 The effluent concentrations of the old septic tank are not known, so the assumed values from Table 8-2 may be used, giving 96.2 mg/l for nitrogen and 11.6 mg/l for phosphorus.

8.18 The effluent concentrations of the new PTP are taken from the manufacturer’s performance certificate. In this example they are 7.9 mg/l for nitrogen and 1.6 mg/l for phosphorus.

8.19 These data are entered into the equation to calculate wastewater load.

$$\text{Wastewater Load (kg/year)} = \frac{\text{Population (p)} \times \text{Daily Water Use (l/p/d)} \times \text{Effluent Conc. (mg/l)} \times 365.25 \text{ (d/year)}}{1,000,000 \text{ (mg/kg)}}$$

Nitrogen load from old septic tank:

$$\text{Wastewater Load (kg/year)} = \frac{2.4 \text{ (p)} \times 135 \text{ (l/p/d)} \times 96.2 \text{ (mg/l)} \times 365.25 \text{ (d/year)}}{1,000,000 \text{ (mg/kg)}} = 11.38 \text{ kg/year}$$

Phosphorus load from old septic tank:

$$\text{Wastewater Load (kg/year)} = \frac{2.4 \text{ (p)} \times 135 \text{ (l/p/d)} \times 11.6 \text{ (mg/l)} \times 365.25 \text{ (d/year)}}{1,000,000 \text{ (mg/kg)}} = 1.37 \text{ kg/year}$$

Nitrogen load from new PTP:

$$\text{Wastewater Load (kg/year)} = \frac{2.4 \text{ (p)} \times 135 \text{ (l/p/d)} \times 7.9 \text{ (mg/l)} \times 365.25 \text{ (d/year)}}{1,000,000 \text{ (mg/kg)}} = 0.93 \text{ kg/year}$$

Phosphorus load from new PTP:

$$\text{Wastewater Load (kg/year)} = \frac{2.4 \text{ (p)} \times 135 \text{ (l/p/d)} \times 1.6 \text{ (mg/l)} \times 365.25 \text{ (d/year)}}{1,000,000 \text{ (mg/kg)}} = 0.19 \text{ kg/year}$$

8.20 The amount of nutrient mitigation credits generated is the difference between the nutrient load before and after the STU, shown in the table below:

Table 8-3: Nutrient mitigation credits generated in worked example 1

	Nitrogen (kg/year)	Phosphorus (kg/year)
Current nutrient load (old septic tank)	11.38	1.37
New nutrient load (new PTP)	0.93	0.19
Nutrient Mitigation Credits generated	10.45	1.18

Example 2

8.21 Example 2 shows the calculations for two dwellings with a shared septic tank that discharges to surface water, which will be replaced with a high efficacy PTP.

8.22 This example is for two dwellings, so using the national average occupancy rate (2.4 persons/dwelling) gives a population of 4.8 persons.

$$\text{Population} = \text{number of dwellings} \times \text{occupancy rate} = 1 \times 2.4 = 4.8 \text{ persons}$$

8.23 The daily water usage is calculated as the building regulations standard plus an additional 10 l/p/d, giving 135 l/p/d.

$$\text{Daily water use} = \text{building regulations standard (l/p/d)} + 10 \text{ l/p/d} = 135 \text{ l/p/d}$$

8.24 The old septic tank discharges to water, which is currently illegal, so for the purposes of this calculation it is assumed to be a standard PTP and the assumed effluent concentration values from Table 8-2 may be used, giving 72.9 mg/l for nitrogen and 9.7 mg/l for phosphorus.

8.25 The effluent concentrations of the new PTP are taken from the manufacturer's performance certificate. In this example they are 7.9 mg/l for nitrogen and 1.6 mg/l for phosphorus.

8.26 These data are entered into the equation to calculate wastewater load.

$$\text{Wastewater Load (kg/year)} = \frac{\text{Population (p)} \times \text{Daily Water Use (l/p/d)} \times \text{Effluent Conc. (mg/l)} \times 365.25 \text{ (d/year)}}{1,000,000 \text{ (mg/kg)}}$$

Nitrogen load from old septic tank:

$$\text{Wastewater Load (kg/year)} = \frac{4.8 \text{ (p)} \times 135 \text{ (l/p/d)} \times 72.9 \text{ (mg/l)} \times 365.25 \text{ (d/year)}}{1,000,000 \text{ (mg/kg)}} = 17.25 \text{ kg/year}$$

Phosphorus load from old septic tank:

$$\text{Wastewater Load (kg/year)} = \frac{4.8 \text{ (p)} \times 135 \text{ (l/p/d)} \times 9.7 \text{ (mg/l)} \times 365.25 \text{ (d/year)}}{1,000,000 \text{ (mg/kg)}} = 2.30 \text{ kg/year}$$

Nitrogen load from new PTP:

$$\text{Wastewater Load (kg/year)} = \frac{4.8 \text{ (p)} \times 135 \text{ (l/p/d)} \times 7.9 \text{ (mg/l)} \times 365.25 \text{ (d/year)}}{1,000,000 \text{ (mg/kg)}} = 1.87 \text{ kg/year}$$

Phosphorus load from new PTP:

$$\text{Wastewater Load (kg/year)} = \frac{4.8 \text{ (p)} \times 135 \text{ (l/p/d)} \times 1.6 \text{ (mg/l)} \times 365.25 \text{ (d/year)}}{1,000,000 \text{ (mg/kg)}} = 0.38 \text{ kg/year}$$

8.26 The amount of nutrient mitigation credits generated is the difference between the nutrient load before and after the STU, shown in the table below:

Table 8-4: Nutrient mitigation credits generated in worked example 2

	Nitrogen (kg/year)	Phosphorus (kg/year)
Current nutrient load (old septic tank)	17.25	2.30
New nutrient load (new PTP)	1.87	0.38
Nutrient Mitigation Credits generated	15.38	1.92

9 INSTALLATION

- 9.1 The new PTPs must be installed to current British Standards and must be installed in compliance with current building regulations (Building Regulations Part H2: wastewater treatment systems and cesspools). These are described in more detail below.

British Standards

- 9.2 British Standards are applied to both the construction of the systems being installed and any drainage field installed as part of that construction, as follows.

System design and installation

- 9.3 The BS EN 12566 – ‘Small wastewater treatment systems for up to 50 PT’ is the British Standard for design and installation of small wastewater treatment systems, including septic tanks and PTPs¹⁰. This standard refers to a set of European standards which specify the construction quality requirements for packaged and/or site assembled wastewater treatment plants used for domestic wastewater treatment for up to 50 PT (population total). The standard is available from the British Standards Institute.

Discharge methods

- 9.4 Discharge methods should follow the hierarchy set out in Building Regulations (2010) Part H2¹¹. PTPs should discharge to ground via a drainage field where possible. Where this is not possible, discharge to a drainage mound is preferable to discharge to surface water. This framework assumes that the existing discharge method is retained, except where the current method doesn't meet the GBRs, or where betterment can be achieved.
- 9.5 New drainage fields must be installed to British Standard BS 6297:2007¹². This standard ensures that drainage fields are installed correctly and will function as intended. Relevant factors include the site/location, ground conditions, percolation tests, and design and construction. Paragraphs 1.27 to 1.44 in the Building Regulations (2010) Part H2: drainage and waste disposal, also give guidance on the design and construction of drainage fields.
- 9.6 The infiltration or percolation rate of the underlying substrate must be tested. A vertical percolation rate (V_p) of between 12 – 100 must be demonstrated to be compliant. In addition, it must be confirmed that ground water is at least 2 m below surface. Instructions on how to undertake percolation tests can be found in the Building Regulations (2010) Part H2 (paragraphs 1.34 to 1.38) and in BS 6297:2007. Percolation tests inform the drainage field design and are required for Building Regulations sign-off.

Competence of installer

- 9.7 The LPAs (Local Planning Authorities) need confidence that the system will be installed correctly and will have longevity. Therefore, the installers must be competent. and be able to demonstrate competence.

¹⁰ British Standards Institution (2025) *BS EN 12566 – Small wastewater treatment systems for up to 50 PT*.

¹¹ Building Regulations (2010) Approved Document H: Drainage and Waste Disposal, Part H2: Wastewater treatment systems and cesspools.

¹² British Standards Institutions (2007) *BS 6297:2007+A1:2008 Code of practice for the design and installation of drainage fields for use in wastewater treatment*.

Building Regulations Sign-off

- 9.8 The newly installed system must be signed off by a qualified Building Regulations Body (BRB). A Building Regulations certified system confirms the electrical connection and drainage field have been installed and sized correctly. The distribution pipes within the drainage field must be inspected prior to the trenches being filled with aggregate; it is the responsibility of the installer to ensure this is undertaken.

10 SERVICING AND MAINTENANCE REQUIREMENTS

- 10.1 The servicing and maintenance of the newly installed system are crucial to ensure that it functions correctly and does not result in negative environmental impacts. The General Binding Rules require that systems are maintained in good working order. Adherence to General Binding Rules is the responsibility of the homeowner.
- 10.2 The proposed management and monitoring for the new package treatment plants is detailed below and is applicable to all newly installed PTPs.

Initial monitoring period

- 10.3 A newly installed PTP system requires a period of use prior to achieving peak performance. Sludge needs to accumulate, and it is understood that approximately sludge should occupy c.20% of the tank void for the system to function efficiently, and it should not accumulate to more than 80% of the void. In order to set the system up and ensure that it is operating correctly repeat visits to the installation must be undertaken as per the manufacturers guidelines. The scope and frequency of service needs to be set out within the UU. For example, service visits might be undertaken at 3, 6 and 12 months in the first year of operation.

Annual service

- 10.4 All systems should undergo an annual service as per the manufacturer's guidance in order to maintain the systems. Some systems may require servicing on a more regular basis.
- 10.5 At the time of servicing, in line with manufacturer's instructions, the package treatment plant must be inspected to ensure it is in good working order, as per General Binding Rules. This inspection will include, but is not limited to, leaks, cracks, blockages, smells and operation of motor, pump, or other features, as per the draft service contract recommended by the Provider. Inspections should be carried out by a competent person, ideally an individual or company registered on the British Water's list of accredited service engineers.
- 10.6 Typically, for the first two years of servicing the water quality will be sampled to ensure that the tank is working optimally at the 3-, 6-, 12- and 24-month intervals. It is required, by the manufacturer, that Water Quality testing is undertaken for the first 2 years. It is common practice to use onsite equipment to test water quality; this test will include phosphorus, Biological Oxygen Demand, Dissolved Oxygen, pH and odour.
- 10.7 However, after 24 months, it is considered that water quality testing will not be required at the annual service unless stipulated by the manufacturer.
- 10.8 Following the annual service a full diagnostic report must be provided to the Property Owner along with the confirmation of the service. It is then the Property Owner's responsibility to provide the annual record to SEC.
- 10.9 If a site subject to a PTP upgrade is sold or otherwise disposed of, the new Property Owner will become responsible for the servicing, maintenance and upgrade of the PTP. The UU runs with the land, and is recorded as a Local Land Charge, therefore it will come up through conveyancing as part of the property purchase. The legal requirements of the UU fall on the new Property Owner by virtue of their owning the land. The UU is made pursuant to Section 106 of the Town and Country Planning Act by the Property Owner to the intent that it binds the Property and its successors in title to each and every part of the Property.

Replacement

10.10 The UU made pursuant to S106 of the Town and Country Planning Act places a legal obligation on the Property Owner to replace the PTP at the end of its operational life with an alternative package treatment plant which provides at least the same level of phosphorus mitigation and nitrogen mitigation indicated in the Technical Mitigation Report as the Property PTP. The replacement tank and its initial set-up and servicing regime must be agreed by the LPA.

Management Period

10.11 This Framework requires that annual servicing and maintenance is undertaken for a period of 90 years after the upgrade, referred to as the Management Period.

APPENDIX A.1 : SHADOW STRATEGIC APPROPRIATE ASSESSMENT

A.1 Shadow Strategic Appropriate Assessment. Version 0.1. ATTACHED SEPARATELY AS APPENDIX
A

APPENDIX A.2 : BRIEFING LETTER TO PROPERTY OWNER

A.2 NOT PROVIDED BUT REFER TO SCHEDULE 9 OF ITT SEC – Document 2_WMS192021STP FOR REQUIREMENTS OF UNILATERAL UNDERTAKING (Part 2 Homeowner’s Agreement)

APPENDIX A.3 : EXAMPLE UNILATERAL UNDERTAKING

A.3 NOT PROVIDED BUT REFER TO SCHEDULE 9 OF ITT SEC – Document 2_WMS192021STP FOR REQUIREMENTS OF UNILATERAL UNDERTAKING

APPENDIX A.4 : EXAMPLE UNILATERAL UNDERTAKING SIDE LETTER

A.4 NOT PROVIDED

APPENDIX A.5 : CREDIT PURCHASE AGREEMENT AND CERTIFICATE

A.5 NOT PROVIDED

APPENDIX A.6 : CO-OPERATION AGREEMENT FOR CROSS- BOUNDARY WORKING, MONITORING AND ENFORCEMENT

A.6 NOT PROVIDED