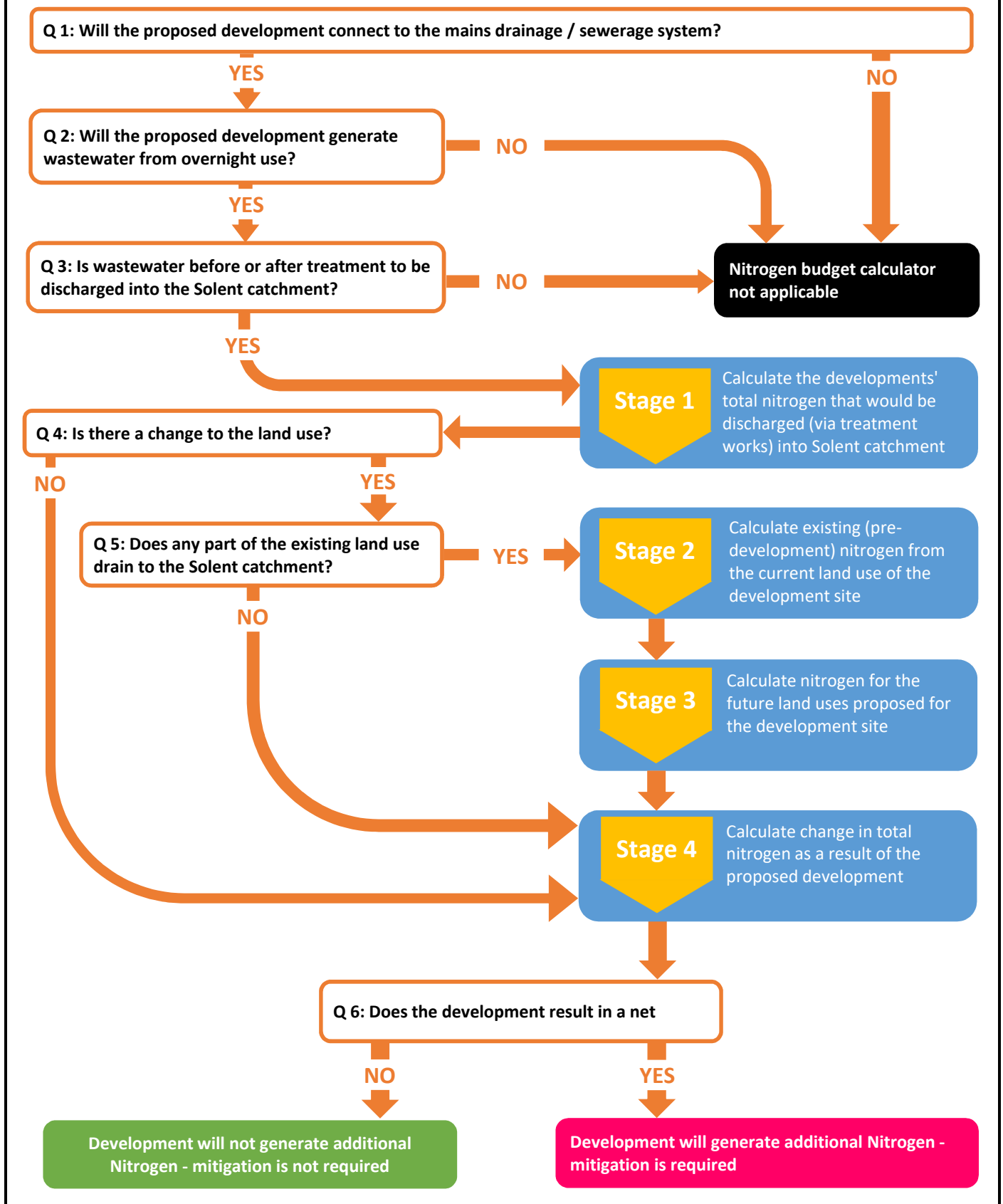


Nitrogen budget calculator flow chart



Notes for the nitrogen budget calculator flow chart and using the calculator

Accompanying Information

Please see the accompanying "Natural England's Advice on Achieving Nutrient Neutrality for New Development in the Solent Region" for more detailed information on calculating a nitrogen budget.

This is available on the Partnership for South Hampshire (PFSH) website at:

<https://www.push.gov.uk/2020/03/18/natural-englands-latest-guidance-on-achieving-nutrient-neutrality-for-new-housing-development/>

A "Summary Advice on Achieving Nutrient Neutrality for New Development in the Solent Region" is also available on the PFSH site.

Overview

To calculate the nitrogen budget for a development proposal, a four stage process has been developed. Each stage is briefly described; a more detailed explanation and worked example is provided in the Natural England (NE) advice.

Please also see the third worksheet "Data Tables & Notes" for some further information as well.

If the nitrogen budget calculation shows there is a nitrogen surplus (a positive figure) then mitigation is required to achieve nitrogen neutrality. If the calculation identifies a deficit (a negative figure) then no mitigation is required.

Notes for the flow chart

Question 1 – The calculator cannot be applied to proposed developed envisaged to use non-mains drainage (such as package treatment plants). In these cases, a bespoke approach is needed - please liaise with the Local Planning Authority (LPA) and NE for further advice.

Question 2 – This methodology is for all types of development that would result in a net increase in population served by a wastewater system, including new homes, student accommodation and tourist accommodation. This development will have inevitable wastewater implications. For tourist attractions, refer to the full guidance and/or consider a bespoke approach with advice from Natural England.

Question 3 – The nitrogen neutrality approach only applies to developments where the treated effluent discharges into any Solent European site (Solent Maritime SAC, Solent and Southampton Water SPA, Portsmouth Harbour SPA, Chichester and Langstone Harbours SPA), or any water body (surface or groundwater) that subsequently discharges into such a site.
N.B. this is only a selection of the designated sites, a full list is provided in the NE advice.

Question 4 – If the development is converting an existing urban use that does not generate overnight stays (such as office accommodation or employment land) to other urban use then this is not considered a change of land use for offsetting purposes. If urban land is being converted to a park or greenspace this should be included in the land use calculation.

Question 5 - If the development site is located within the Solent catchment, there is a pathway (via surface or groundwater) for nutrients added to this land to contribute to designated sites water quality standards. In these cases, the existing uses can be used to offset the nutrients from wastewater. If the site is not within the Solent catchment, the existing use cannot be taken into account in Stage 2 or 3.

Question 6 - It is recognised that achieving nutrient neutrality may be problematic for smaller developments, developments on brownfield land, or developments that are well-progressed in the planning system. NE is working closely with LPAs to progress Borough /District/City wide and more strategic options. It is recommended that discussions are held with the relevant LPA with regard to these options. Further information will be available on the PFSH website and NE can provide further advice on the methodology and mitigation options through our chargeable services (Discretionary Advice Service (DAS)).

Information Requirements for Users of the Calculator

Before using the calculator, it is essential that the following information is available:

- Number of housing units / dwellings proposed
- The Wastewater Treatment Works that the development will be served by. If not known, or not listed, please select "Not Known" from the drop-down menu
- The total area (in hectares) of the site
- The current use of the site
- Total SANG, greenspace or other land uses that come forward with the proposed development on the site (each in hectares)

Using the Calculator

1. Enter the Planning Application Reference (if known); site name / address; date; and any additional information relevant to the application.
2. Data can only be entered into the green highlighted cells. Please ensure the correct information has been input.

The calculator worksheet can be printed once completed. It will print out on two sides of A4 by default.

Nitrogen Budget Calculation

Planning Application Reference No.	
Site Name:	
Additional Information:	
Date:	03 March 2020

Stage 1	Calculate total Nitrogen in kg per year derived from the development that would exit the Wastewater Treatment Works (WwTW) into Solent catchments after treatment								
Step 1	Calculate additional population								
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">Enter the number of units proposed</td> <td style="width: 30%; text-align: center;">0</td> </tr> <tr> <td>Net population increase per housing unit</td> <td style="text-align: center;">2.40</td> </tr> <tr> <td>Total net population increase generated by the development</td> <td style="text-align: center;">0.00</td> </tr> </table>	Enter the number of units proposed	0	Net population increase per housing unit	2.40	Total net population increase generated by the development	0.00		
Enter the number of units proposed	0								
Net population increase per housing unit	2.40								
Total net population increase generated by the development	0.00								
Step 2	Calculate wastewater volume generated by the development								
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">Water use in litres per person per day</td> <td style="width: 30%; text-align: center;">110</td> </tr> <tr> <td>Total wastewater volume generated by the development (litres per day)</td> <td style="text-align: center;">0</td> </tr> </table>	Water use in litres per person per day	110	Total wastewater volume generated by the development (litres per day)	0				
Water use in litres per person per day	110								
Total wastewater volume generated by the development (litres per day)	0								
Step 3	Confirm receiving WwTW and permit limit								
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">Select the wastewater treatment works the development will connect to</td> <td style="width: 30%; text-align: center;">Not Known</td> </tr> <tr> <td>Wastewater treatment works' permit limit (mg per litre)</td> <td style="text-align: center;">27.0</td> </tr> <tr> <td>Wastewater treatment works' discharge level (mg per litre)</td> <td style="text-align: center;">27.0</td> </tr> </table>	Select the wastewater treatment works the development will connect to	Not Known	Wastewater treatment works' permit limit (mg per litre)	27.0	Wastewater treatment works' discharge level (mg per litre)	27.0		
Select the wastewater treatment works the development will connect to	Not Known								
Wastewater treatment works' permit limit (mg per litre)	27.0								
Wastewater treatment works' discharge level (mg per litre)	27.0								
Step 4	Calculate total nitrogen in kg per year discharged by the WwTW								
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">Deduct acceptable Nitrogen loading in wastewater (mg per litre)</td> <td style="width: 30%; text-align: center;">25.0</td> </tr> <tr> <td>Total Nitrogen discharged by WwTW (mg per day)</td> <td style="text-align: center;">0.0</td> </tr> <tr> <td>Total Nitrogen discharged by WwTW (kg per day)</td> <td style="text-align: center;">0.0000</td> </tr> <tr> <td>Total Nitrogen discharged by WwTW (kg per year)</td> <td style="text-align: center;">0.0</td> </tr> </table>	Deduct acceptable Nitrogen loading in wastewater (mg per litre)	25.0	Total Nitrogen discharged by WwTW (mg per day)	0.0	Total Nitrogen discharged by WwTW (kg per day)	0.0000	Total Nitrogen discharged by WwTW (kg per year)	0.0
Deduct acceptable Nitrogen loading in wastewater (mg per litre)	25.0								
Total Nitrogen discharged by WwTW (mg per day)	0.0								
Total Nitrogen discharged by WwTW (kg per day)	0.0000								
Total Nitrogen discharged by WwTW (kg per year)	0.0								

Stage 2	Calculate existing (pre-development) nitrogen from current land use of the development site																										
Step 1	Total area of development site																										
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">Enter the total area of the development site (hectares)</td> <td style="width: 30%; text-align: center;">0.00</td> </tr> </table>	Enter the total area of the development site (hectares)	0.00																								
Enter the total area of the development site (hectares)	0.00																										
Step 2	Identify current land uses of the development site																										
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 70%;">Enter area currently used for urban development (hectares)</td><td style="width: 30%; text-align: center;">0.00</td></tr> <tr><td>Enter area currently used for open space / greenfield (hectares)</td><td style="text-align: center;">0.00</td></tr> <tr><td>Enter area currently used for woodland (hectares)</td><td style="text-align: center;">0.00</td></tr> <tr><td>Enter area currently used for community food growing / catchment average (hectares)</td><td style="text-align: center;">0.00</td></tr> <tr><td>Enter area currently used for cereals (hectares)</td><td style="text-align: center;">0.00</td></tr> <tr><td>Enter area currently used for dairy (hectares)</td><td style="text-align: center;">0.00</td></tr> <tr><td>Enter area currently used for general cropping (hectares)</td><td style="text-align: center;">0.00</td></tr> <tr><td>Enter area currently used for horticulture (hectares)</td><td style="text-align: center;">0.00</td></tr> <tr><td>Enter area currently used for pig farming (hectares)</td><td style="text-align: center;">0.00</td></tr> <tr><td>Enter area currently used for lowland grazing (hectares)</td><td style="text-align: center;">0.00</td></tr> <tr><td>Enter area currently used for mixed farming (hectares)</td><td style="text-align: center;">0.00</td></tr> <tr><td>Enter area currently used for poultry farming (hectares)</td><td style="text-align: center;">0.00</td></tr> <tr> <td>Check to help ensure that sum total of land uses in Step 2 equals site area in Step 1</td> <td style="text-align: center;">0.0</td> </tr> </table>	Enter area currently used for urban development (hectares)	0.00	Enter area currently used for open space / greenfield (hectares)	0.00	Enter area currently used for woodland (hectares)	0.00	Enter area currently used for community food growing / catchment average (hectares)	0.00	Enter area currently used for cereals (hectares)	0.00	Enter area currently used for dairy (hectares)	0.00	Enter area currently used for general cropping (hectares)	0.00	Enter area currently used for horticulture (hectares)	0.00	Enter area currently used for pig farming (hectares)	0.00	Enter area currently used for lowland grazing (hectares)	0.00	Enter area currently used for mixed farming (hectares)	0.00	Enter area currently used for poultry farming (hectares)	0.00	Check to help ensure that sum total of land uses in Step 2 equals site area in Step 1	0.0
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Enter area currently used for open space / greenfield (hectares)	0.00																										
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Enter area currently used for poultry farming (hectares)	0.00																										
Check to help ensure that sum total of land uses in Step 2 equals site area in Step 1	0.0																										
Step 3	Calculate nitrogen load from current land usage																										
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">Total Nitrogen load from current land usage (kg per year)</td> <td style="width: 30%; text-align: center;">0.0</td> </tr> </table>	Total Nitrogen load from current land usage (kg per year)	0.0																								
Total Nitrogen load from current land usage (kg per year)	0.0																										

Nitrogen Budget Calculation

Stage 3	Calculate nitrogen load for the non-built land uses proposed for the development site	
Step 1	Identify proposed land uses of the development site	
	Enter the total urban area to be created (hectares)	0.00
	Enter the total designated open space / SANG area to be created (hectares)	0.00
	Enter the total nature reserve area to be created (hectares)	0.00
	Enter the total woodland area to be created (hectares)	0.00
	Enter the total community orchard area to be created (hectares)	0.00
	Enter the total community food growing / allotment area to be created (hectares)	0.00
	<i>Check to help ensure that sum total of proposed land uses equals site area in Stage 2</i>	0.00
Step 2	Calculate total Nitrogen load from proposed land uses	
	<i>Total Nitrogen load from future land uses (kg per year)</i>	0.00

Stage 4	Calculate the net change in Nitrogen load from the proposed development	
Step 1	Identify Nitrogen load from wastewater (Stage 1)	
	<i>Nitrogen leaving wastewater treatment works (kg per year)</i>	0.00
Step 2	Calculate net change in Nitrogen load from land use changes	
	<i>Total Nitrogen load from future land use (kg per year)</i>	0.00
Step 3	Calculate total Nitrogen budget for the development site	
	<i>Nitrogen budget for the site (kg per year)</i>	0.00
Step 4	Calculate precautionary buffer if Nitrogen budget exceeds zero	
	<i>Precautionary Nitrogen buffer (kg per year)</i>	0.00

Total Nitrogen budget for the proposed development (kg per year)	0.0
Development will be Nitrogen neutral - no mitigation will be required	

Wastewater Treatment Works development will connect

Waste Water Treatment Works (WwTWs)	TN Permit?
Not Known	Unknown
Apuldram*	Yes
Bishops Waltham	Yes
Bosham	Yes
Budds Farm	Yes
Chickenhall	No
Fullerton	No
Millbrook	Yes
Peel Common	Yes
Pennington	Yes
Portswood	No
Slowhill Copse	Yes
Thornham	Yes
Woolston	Yes

Notes to Table 1:

Users select the WwTW that development will connect to. If the WwTW is not y select "Not Known" and the default value of 27mg/l will be used.

Where no permit limit applies, the default value of 27mg/l will also be used.

* Potential connections to Apuldram should be in line with this position statement
[Apuldram WwTW Position Statement](#)

A bespoke approach may be needed for some WwTWs such as:

- Ivy Down Lane Oakley
- North Waltham
- Whitchurch

Please liaise with the Local Planning Authority and Natural England in these cases

to
Permit Limit (mg / l)
27
9
15
10
9.7
27
27
10
9
9.5
27
14
10
15

Table 1

et identified,
ent:
es.

Nitrogen Leaching Rates from
Land Use
Urban Development
Open Space / Greenfield
Woodland
Community Food Growing
Cereals
Dairy
General Cropping
Horticulture
Pig Farming
Lowland Grazing
Mixed
Poultry Farming
Average for Catchment

Notes to Table 2:

Farm Types

The UK system is based on weighting the contributions associated outputs. The weights used (known as 'Standard hectare of crops and per head of livestock and used to associated with each part of the Farm Business.

Cereals

Holdings on which cereals, combinable crops and set-aside the total SO and (pre-2007) where set-aside alone did not account for more than two thirds of the total SO.

Dairy

Holdings on which dairy cows account for more than two thirds of their total SO.

General cropping

Holdings on which arable crops (including field scale vegetables) account for more than two thirds of the total SO, excluding holdings classified as specialist arable and horticultural crops account for more than two thirds of their total SO and holdings on which horticulture and holdings on which one third of their total SO and no other grouping accounts for more than one third of their total SO.

Horticulture

Holdings on which fruit (including vineyards), hardy nursery plants, cut flowers, vegetables, market garden scale vegetables, outdoor plants account for more than two thirds of their total SO.

Specialist Pigs

Holdings on which pigs account for more than two thirds of their total SO.

Lowland Grazing Livestock
Holdings on which cattle, sheep and other grazing livestock account for more than two thirds of their total SO except holdings classified as dairy.

Mixed

Holdings for which none of the above categories accounts for more than two thirds of their total SO. This category includes mixed pigs and poultry farms as well as holdings where neither accounts for more than 2/3 of their total SO.

Specialist Poultry

Holdings on which Poultry account for more than two f

See:

http://farmbusinesssurvey.co.uk/DataBuilder/UK_Farr

Current Land Use

Leaching Rate (Nitrogen kg / ha / yr)	
	14.3
	5
	5
	26.9
	31.2
	36.2
	25.4
	29.2
	70.4
	13
	28.3
	70.7
	26.9

Table 2

of each enterprise in terms of their ard Outputs' or SOs) are calculated per calculate the total standard output
side account for more than two thirds of not account for more
wo thirds of their total SO
vegetables) account for more than two ereals; holdings on which a mixture of wo thirds of their total SO excluding ch arable crops account for more than nts for more than one third.
rsery stock, glasshouse flowers and ulbs and flowers, and mushrooms
ds of their total SO
stock account for more than two thirds
nts for more than 2/3 of total SO. This as farms with a mixture of crops and f SOs).

thirds of their total SO.

[n Classification 2014 Final.pdf](#)

Contacts for Further Information

Local Planning Authorities

Partnership for South Hampshire
Chichester District Council
East Hampshire District Council
Havant Borough Council
South Downs National Park
Portsmouth City Council
Gosport Borough Council
Fareham Borough Council
Winchester City Council
Southampton City Council
Test Valley Borough Council
Basingstoke and Deane District Council
New Forest District Council
New Forest National Park
Wiltshire County Council
West Berkshire
Isle of Wight Council

Other Contacts

Hampshire & Isle of Wight Wildlife Trust
Natural England
Environment Agency
Southern Water

www.push.gov.uk/
www.chichester.gov.uk
<https://www.easthants.gov.uk>
www.havant.gov.uk/nitrogen
www.southdowns.gov.uk
www.portsmouth.gov.uk/ext/development-and-planning/planning-policy/nitrate-mitigation-strategy
www.gosport.gov.uk
www.fareham.gov.uk/planning/nitratepositionstatement.aspx
www.winchester.gov.uk/planning/wcc-position-statement-on-nitrate-neutral-development
www.southampton.gov.uk
<https://www.testvalley.gov.uk/planning-and-building/guidance/solent-southampton-water-special-protection>
www.basingstoke.gov.uk
http://newforest.gov.uk/nutrientneutrality_nitrates
www.newforestnpa.gov.uk
www.wiltshire.gov.uk
www.westberks.gov.uk
www.iow.gov.uk

www.hiwwt.org.uk/news/route-nitrate-neutrality-solent
<https://www.gov.uk/government/organisations/natural-england>
<https://www.gov.uk/government/organisations/environment-agency>
<https://www.southernwater.co.uk/>

l-area