An assessment of the nutrient and phosphorous budgets required to support development within the Island Planning Strategy

1.0 Introduction

1.1 The Island Planning Strategy guides development on the island over the 15 year plan period 2022-2037. It sets the overall strategic direction for growth on the island and includes strategic policies, allocations for a range of land uses including residential, and development management policies.

1.2 The IPS is accompanied by a suite of environmental assessments including a Habitat Regulations Assessment (HRA). HRA refers to the assessment of the potential effects of a development plan on one or more sites afforded the highest level of protection in the UK: SPAs and SACs. These were classified under European Union (EU) legislation but, since 1 January 2021, are protected in the UK by the Habitats Regulations 20172 (as amended).

1.3 Natural England advise that there is uncertainty around whether new development associated with over-night accommodation will further deteriorate the condition of the marine designated sites (Solent SPAs and SACs). There are high levels of nitrogen and phosphorus input to this water environment with sound evidence that these nutrients are causing eutrophication at the marine designated sites. These nutrient inputs currently mostly come either from agricultural sources or from wastewater from existing and new housing as well as other development.

1.4 Natural England (NE) has advised that any new development proposed that uses WwTW that discharge into the Solent European sites and/or waterbodies that subsequently discharge into these designated sites will need to demonstrate no adverse effects on integrity by achieving nutrient neutrality. **Conversely, NE have advised that development which connects to a WwTW that does not discharge into the Solent does not need to demonstrate nutrient neutrality.**

1.4 The aim of this document is to provide an evidence base to allow certainty in the conclusions of the Habitat Regulations Assessment. It looks solely at the issue of nutrient and phosphorous neutrality associated with the planned development within the IPS. An approximate nutrient budget for the proposed growth (including consideration of windfall sites) is provided and consideration of the feasibility of the mitigation options is set out.

2.0 Draft HRA (2021) findings

2.1 16 sites were screened into the draft IPS HRA Appropriate Assessment in 2021 because of the potential need to demonstrate nutrient neutrality and some high level mitigation options for development coming forward were set out within the HRA. Natural England advised in their response to the draft IPS that *"At the Local Plan level we would usually expect to see a more detailed consideration of the feasibility of mitigation options (and where they might come forward), as well as an approximate nutrient budget for the allocations".* Therefore, further analysis of the high-level mitigation options is required to ensure certainty around delivery of the planned growth, together with an assessment of an approximate nutrient budget.

3.0 IPS Nutrient Budget Calculation

3.1 To calculate a potential nutrient budget for level of development planned within the IPS, it is firstly necessary to understand that as noted in paragraph 1.4 of this paper, NE have advised that development connecting to a Wastewater Treatment Works (WwTW) on the island that does not discharge into the Solent does not need to demonstrate nitrate neutrality. As identified on the map in Appendix 3 of the IWC Position Statement on this issue, Sandown, Brighstone, Shorwell & St Lawrence WwTWs outfall into the English Channel and are therefore developments that will connect to any of these WwTW do not have to demonstrate nutrient neutrality.

3.2 The IWC require that applicants must confirm as part of their planning application submission whether their development will connect to the public sewer system and if so, gain written confirmation from Southern Water that it would drain to Sandown, Brighstone, Shorwell or St Lawrence WwTW. If this is the case, then the IWC will impose a planning condition (see Appendix B of the Position Statement for example wording) on any grant of planning permission.

3.3 Following the Regulation 18 consultation on the Draft IPS and supporting evidence base in 2021, a review of site allocations has been completed and Table 1 overleaf shows the sites that are proposed for residential allocation in the draft Island Planning Strategy. Following consultation and information received from Southern Water, the WwTW to be utilised by each development site has also been identified in the table.

3.4 The table demonstrates that 97% of the proposed allocations would connect to Sandown WwTW and only one proposed allocation would not and therefore be required to agree nutrient neutrality mitigation. This is to be expected because the majority of wastewater from all residential development on the island (90%+) is treated at the Sandown WwTW.

3.5 The one site that would not connect to Sandown WwTW already has an agreed mitigation package in place (planning application reference 22/00733/FUL) and this is discussed in more detail in section 4.0 of this paper.

3.6 Windfall sites, which come through as part of the plan, are also subject to HRA and will need to follow the approach set out in the IWC Position Statement at the time of application. The draft IPS includes provision for 1,500 dwellings from windfall development across the plan period of 2022-2037 (at an average of 100 dwellings per year).

3.7 It is possible that some of these windfall development sites that connect to the mains may have wastewater directed to one of the smaller treatment plants (i.e. not Sandown, Brighstone, Shorwell or St Lawrence) and would therefore need to demonstrate nutrient neutrality and potentially provide mitigation. Calculating an accurate budget for these development is difficult, as by their very nature the location, timing and size of windfall sites are unknown at the time of preparing the local plan.

3.8 Policies within the IPS (particularly G2 and H1) aim to direct as much unplanned growth as possible to within existing settlements on the island, meaning that the majority of windfall development would likely follow the pattern of existing development in these locations and connect to Sandown WwTW and therefore not require mitigation.

Site	Site address	Settlement	Indicative yield	WwTW serving site	Nutrient mitigation required
HA002	Land and School buildings at Weston Primary School, Weston Road	West Wight	10	Sandown	N
HA005	Land to the east of Football Club, Camp Road	West Wight	100	Sandown	N
HA006	Heathfield Campsite, Heathfield Road	West Wight	70	Sandown	N
HA018	Green Gate Industrial Estate, Thetis Road	Cowes	25	Sandown	N
HA020	Former Somerton Resevoir, Newport Road	Cowes	146	Sandown	N
HA022	Somerton Farm, Newport Road	Cowes	130	Sandown	N
HA025	Land rear of 84 Wyatts Lane	Cowes	20	Sandown	N
HA031	Various land adjacent to and east of Carisbrooke College	Newport	175	Sandown	N
HA032	Land at Horsebridge Hill & Acorn Farm	Newport	150	Sandown	N
HA033	Land west of Sylvan Drive	Newport	225	Sandown	N
HA036	Land at Noke Common	Newport	100	Sandown	N
HA037	Former Library HQ, land adjacent St Marys Hospital	Newport	25	Sandown	N
HA038	Land off Broadwood Lane	Newport	150	Sandown	N
HA039	Former HMP site	Newport	750	Sandown	N
HA044	Newport Harbour	Newport	250	Sandown	N
HA046	Land at Crossway	East Cowes	125	Sandown	N
HA055	Old Hosiden Besson site, Binstead Road	Ryde	20	Sandown	N
HA060	Westridge Cross Dairy and land to the north of Bullen Rd	Ryde	474	Sandown	N
HA064	Land north of Mill Road and east of High Street	Bembridge	80	Sandown	N
HA065	Land east of Hillway Road and south of Steyne Road	Bembridge	66	Sandown	N
HA077	Winchester House, Sandown Road	The Bay	20	Sandown	N
HA078	Learning Centre, Berry Hill	The Bay	30	Sandown	N
HA080	Former Sandham Middle School site	The Bay	84	Sandown	N
HA084	Former SPA Hotel, Shanklin Esplanade	The Bay	50	Sandown	N
HA096	Land adj Scotland Farm and Tresslewood Care Village	Godshill	100	Godshill	Y
HA110	Land at Moreys Timber Yard, Trafalgar Road	Newport	100	Sandown	N
HA115	Former Polars Residential Home	Newport	50	Sandown	N
HA116	Former St Marys Convent	Ryde	25	Sandown	N
	Windfall development @ 100 units per year	Island wide	1500	?	?
Total allocations and windfall development 2022-2037			**5050**		
Proposed allocations served by Sandown WwTW			**3450**	***97% of allocated growth***	
Proposed allocations served by other WwTW			**100**	***3% of allocated growth***	

Table 1: Draft IPS allocations, yields and location of WwTW connection

3.9 However proceeding on a precautionary basis, and to reflect the fact that policies within the IPS do allow limited windfall development in rural areas (policies H4, H6, H7 & H9), a nutrient budget has been calculated on the basis that 75% of windfall development would connect to Sandown, Brighstone, Shorwell or St Lawrence WwTW, and the remaining 25% would require some form of nutrient mitigation (this figure of 25% is considerably in excess of the less than 10% of current development that does not connect to Sandown, Brighstone, Shorwell or St Lawrence WwTW).

3.10 On the basis of 1,500 windfall dwellings coming forward within the plan period, 25% of this total equates to 375 dwellings. Using the latest version of the Solent Nutrient Calculator (https://www.push.gov.uk/wp-content/uploads/2022/04/Solent-Nutrient-Budget-Calculator-Version-2-21.04.22.xlsx) a nutrient budget can be estimated for this scale of development.

3.11 Given the location of this windfall development is unknown, the following inputs have been made to the calculator to again provide a precautionary estimate:

- A single 19ha site in the north of the island of 375 dwellings at a development density of approximately 20dph;
- Water usage of 100 litres per household per day to reflect IPS policy EV13 that sets this limit;
- Impeded drainage, avg annual rainfall of 750.1-800mm in a Nitrate Vulnerable zone;
- A location on the island that would connect to a WwTW that discharges to the Solent but that has a nitrogen permit (in this example Shalfleet WwTW);
- The existing use of the land is 50% lowland grazing and 50% cereals;
- The proposed use of the land is 50% residential urban land and 50% split equally between water, woodland, shrubs and greenspace

3.12 Using the inputs above, the annual nutrient load to mitigate is calculated as **868.37 kg TN/year.**

4.0 Potential mitigation to offset the nutrient budget

4.1 Section 3.0 of this paper identified a precautionary nutrient budget of **868.37kg TN/year** that would require mitigation across the plan period (2022-2037). It is necessary to review the mitigation options that are available to ascertain whether this nutrient load could be adequately mitigated within the plan period covered by the HRA.

4.2 From a policy perspective, the IPS includes a specific policy, EV4 Water Quality Impact on Solent Marine Sites (Nitrates), which specifically addresses the potential impacts to water quality in the Solent from nutrient enrichment that may arise from proposed development in the plan. The policy sets out when and how to identify whether mitigation is required and refers to the IWC Position Statement on the issue which is regularly reviewed to provide the most up to date guidance, and links to the Natural England guidance on the topic.

4.3 The HRA includes identification of potential mitigation options which are:

1. **Interceptor Wetlands** – wetlands can be effective at uptake of nutrients through natural processes. They include storm interceptor wetlands and interceptor wetlands to take effluent from WwTWs before discharge into watercourses. Wetlands need to be appropriately designed and located to be effective and this would need to be assessed on a case by case basis;

2. **Offsetting** – through a change in land use in the catchment area from land uses with high nutrient loads to conversion of less nutrient intensive land uses, for example converting agricultural land with high phosphorous and nitrogen inputs to woodland or semi-natural grassland such as chalk grassland with no additional nutrient inputs and low natural discharge – this offsetting can be on site, adjacent to site or on strategic off-site 'nitrate credit' sites;

3. **Upgrade existing WwTWs** - To increase nutrient removal capacity and therefore reduce the effluent nutrient loading.

4.4 For the purposes of this exercise, Option 2 'Offsetting' will be concentrated on as this is the option available for individual applicants to pursue and is not reliant on decision making by a third party as Options 1 and 3 would be (the relevant water authority). Any mitigation offered by the implementation of Options 1 and 3 would therefore be over and above and in excess of any mitigation provided by individual schemes.

4.5 As set out in the IWC Position Statement and NE guidance, individual sites are able to offset any nutrient budget by removing adjoining land within their control from more intensive nutrient land uses, e.g., agriculture. Indeed this is the case with the sole proposed allocation that would not connect to Sandown WwTW, site HA096 Land adjacent to Scotland Farm and Tresslewood Care Village in Godshill. The site in question has agreed a nutrient mitigation package in advance of planning application submission (reference 22/00733/FUL) that utilises adjoining land and reduces the nutrient load of that land to offset the increase on the development site.

4.6 There are numerous other schemes across the island that have also appropriately mitigated a nutrient budget through changes in land use either within or adjacent to the application site, including one highlighted below as a recent example:

20/02260/FUL – Demolition of industrial building, proposed development of 28 residential units, associated highway access and supporting infrastructure, public open space and attenuation pond, Part OS Parcel 8530, Off Main Road, Rookley, Isle of Wight - Two off site parcels of land within the same ownership have been secured via S106 agreement to be taken out of agricultural use and subject to an agreed Woodland Planting and Management scheme, which will be monitored by IWC over the lifetime of the development.

4.7 Given the likely small scale of the majority of windfall development coming forward (under 5 units), the opportunity to offset on or adjacent to site for many schemes will be available and the most appropriate and cost effective way of mitigating the harm.

4.8 The other option for development requiring nutrient mitigation is to purchase 'credits' from schemes that deliver reduced nutrient loads on a larger scale within the same catchment as the development site. A number of these larger strategic credit sites are located on the Isle of Wight and the availability of off-site 'nitrate credit' mitigation schemes is expected to continue and, in conjunction with many sites that will deliver on or adjacent site mitigation, will help to meet future demand.

4.9 The Partnership for South Hampshire (PfSH) have recently completed a Nutrient Mitigation Supply and Demand Analysis (February 2022) which shows a sufficient supply of 'strategic' nutrient neutrality mitigation options to aid the delivery of growth in the Solent region. There are currently ten strategic mitigation sites listed on the PfSH website to guide developers to potential mitigation schemes. On the Isle of Wight, there are currently 4 schemes providing nitrate credits:

Site	Owner	Credit capacity
Little Duxmore Farm	Hampshire and Isle of Wight Wildlife Trust	3000kg TN/year
Nunwell Estate	Hampshire and Isle of Wight Wildlife Trust	3100kg TN/year
Kings Manor	Harry Ferguson Farms Ltd	800kg TN/year
Heaton Farm	Heaton Farms Ltd	450kg TN/year

4.10 Whilst not all windfall development will be in the same catchment as each of these credit sites, and not all of the credits are available, the overall combined capacity provided by the four current schemes **(over 7,300 kg TN/year)** demonstrates that there is sufficient credit available to more than meet the precautionary nutrient load **(868.37kg TN/year)** from windfall development, notwithstanding that a high proportion of the 868.37 figure will be mitigated on or adjacent to individual sites. It must also be seen in the context of the windfall development coming forward across the 15 year plan period rather than all at once in the next couple of years, therefore more nitrate credit sites will be available at differing times of the plan period.

4.11 Ongoing partnership work continues to seek to address the long term issue of nutrients and to establish strategic solutions. The Isle of Wight Council attends regular PfSH meetings along with Natural England, Environment Agency and the water companies to provide an ongoing response to meeting the nutrient neutral approach to housing and development.

4.12 A Solent Nutrient Market Pilot as been set up to test the use of an online nutrient trading platform. This is funded by DEFRA and aims to establish a catchment market for the sale of nitrogen mitigation credits. Work is currently underway to establish both the mitigation needs for future development and to identify suitable projects for the market. A Catchment Opportunities Statement is expected in due course.

Solent Nutrient Market Pilot

Solent Nutrient Market - Partnership for South Hampshire (push.gov.uk)

4.13 Further supply and demand reports will be produced on a six-monthly basis in order to be able to recommend further interventions should the supply of mitigation fail to meet demand in the future. The summer 2022 update will also allow further analysis of the impact of on-site mitigation in relation to the demand for strategic mitigation. Ongoing monitoring and development of strategic solutions aims to enable development in the longer term.

4.14 On this basis we can conclude that sufficient nutrient mitigation credits will be available to satisfy the windfall development needs of the Island Planning Strategy over the plan period, and therefore the IPS meets the provisions of the Habitat Regulations.

5.0 Phosphorous

5.1 Advice from Natural England also highlights that within the Medina Estuary, phosphorous pollution may also be negatively impacting the Solent SPA & SAC, although the NE guidance on this issue is not as well advanced in the Solent area as it is for nitrates. As shown in able 1 of this paper, none of the proposed allocations will discharge into the Medina catchment, therefore a phosphorous budget and mitigation is not required. There may be elements of windfall development that could, however in line with their current guidance we would expect to negotiate mitigation with NE on a case by case basis for such development given the likely scarcity of such proposals.

Stage 1

User Inputs

Date of first occupancy:	01/01/2025
Average occupancy rate:	2.40
Water usage (litres/person/day)**:**	100
Development Proposal (dwellings/units)**:**	375
Include deductible acceptable loading?	Yes
Wastewater treatment works:	Shalfleet WwTW
Wastewater treatment works N permit (mg TN/litre)**:**	25

Stage 1 Calculated Loading

Stage 1 Nutrient Loading

Additional population	900	people
Wastewater by development	90000	litres/day
Annual wastewater TN load	**821.81**	**kg TN/yr**

Stage 2

User Inputs

Catchment:	Isle of Wight Rivers
Soil drainage type:	Impeded drainage
Annual average rainfall (mm)**:**	750.1 - 800
Within Nitrate Vulnerable Zone (NVZ):	Yes

Existing land use type(s)	**Area** (ha)	**Annual nitrogen nutrient export** (kg TN)
Lowland	9.50	76.78
Cereals	9.50	173.90
Total:	**19**	**250.69**

Stage 3

User Inputs

New land use type(s)	**Area** (ha)	**Annual nitrogen nutrient export** (kg TN)
Residential urban land	9.00	130.01
Shrub	2.50	7.50
Woodland	2.50	7.50
Greenspace	2.50	7.50
Water	2.50	0.00
Total:	**19**	**152.51**

Stage 4

Calculated Outputs

Annual Nutrient Budget

The total annual nitrogen load to mitigate is:	**868.37 kg TN/year**