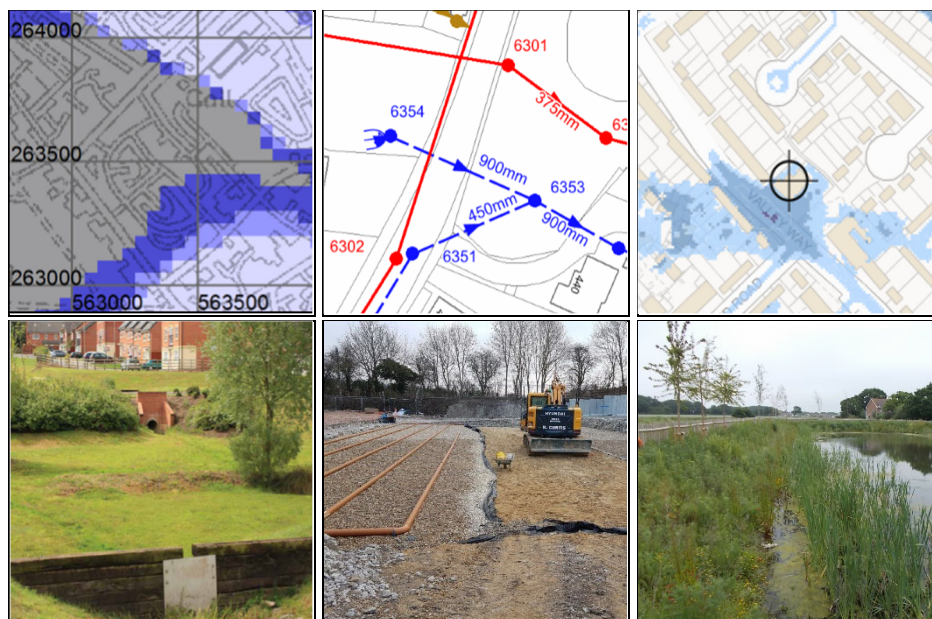




Nitrogen Nutrient Assessment

**Land West of Coldharbour Farm Road,
Emsworth, Hants**

Reference: 20041

Issue: **Date:**

1 23/4/2020

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A	Existing & Proposed Site Layouts
B	Wastewater Treatment Information
C	Nitrogen Assessment & Mitigation
D	Conditions & Limitations

1. Introduction

- 1.1 Instructions were received from the Telstar Ltd to undertake an assessment of the nitrogen nutrient impact for the proposed development of 44 dwellings on land West of Coldharbour Farm Road, Emsowrth, Hants.
- 1.2 This assessment has been undertaken by A P Traves BSc CEng MIStructE MCIHT.
- 1.3 The client's attention is drawn to the conditions and limitations contained in Appendix D.

2. Development Description & Location

- 2.1 The site comprises grazing paddocks off Coldharbour Farm Road, Emsworth, Hants. The site extents are on topographic survey contained in Appendix A of this report.
- 2.2 It is proposed to construct 44 new dwellings on the site. The proposed layout is identified on RH partnership Architects drawing number P0768-RHP-00-ZZ-PL-A-1001 P1 contained in Appendix A of this report.

3. Background to Nitrogen Nutrient Assessment

- 3.1 The background to the issue is set out in current natural England Advice note version 4 of March 2020 -Achieving Nutrient Neutrality for New Development in The Solent Region (NEv4). Reference should be made to NEv4 for a more in depth understanding which is summarised in the following paragraphs.
- 3.2 The Solent water environment is internationally important and is protected under the Water Environment Regulations and the Conservation of Habitats and Species Regulations, as well as national protections. There are high levels of nitrogen and phosphorus nutrients in these waters and the evidence indicates these nutrients are causing eutrophication of the waters (excess mats of dense green algae which deplete oxygen as these subsequently decay)
- 3.3 The total nutrient content comes from a number of component parts:
 - i. Agricultural use of fertilisers, particularly in the latter half of the 20th century
 - ii. General coastal background content
 - iii. Nitrate within final discharge from sewage treatment works
 - iv. Diffuse urban rainfall runoff from urban surfaces
- 3.4 Since the late 1980's and early 1990's the agricultural sector has reduced the nitrogen content in applied fertiliser by around 35%. However, the Chalk aquifers which underly the region and which are the dominant source of river flows into The Solent contain a massive amount of legacy nitrogen mainly in the form of soluble nitrate, from decades of previous agricultural practice. It is anticipated that it will take decades from now for the nitrogen content in groundwater to gradually reduce.
- 3.5 Nitrate in treated sewage is the natural product of the breakdown of ammonia contained in human waste. Historic practice was that the permitted concentration of ammoniacal nitrogen in the treated discharge was limited so that the ammonia to nitrate conversion occurred at the treatment works and took up oxygen within the works and did not subsequently take up oxygen from out of the waters into which discharge was made to protect the receiving waters from deoxygenation ,ie that the discharge made would have a low Biological Oxygen Demand (BOD).
- 3.6 It has been recognised by the Environment Agency, water companies and OFWAT for some time that improvement of the Total Nitrogen (TN) content of discharge needs to be addressed. The water industry works in 5 year spending cycles/programmes referred to as Asset Management Plans (AMPs) and these three parties agree between them how much investment (which comes from increases in sewage bills) can be made in any AMP and

what will be delivered in terms of improvement for the investment permitted (affordable). Since the beginning of AMP4 in 2005 Southern Water have begun to systematically upgrade existing treatment works to provide 'nitrogen stripping'. This process has to be artificially 'forced' by careful and continuous control of the treatment process to create a low oxygen environment which 'debonds' the oxygen from the nitrate and stimulates the emission of gaseous nitrogen into the atmosphere (which is 78% nitrogen). This nitrogen release is thus stripped from the effluent that discharges into the receiving waters. It is not practicable to strip 100% of the nitrogen from the sewage, and the upgraded treatment works typically operate to a new TN permit level of around 10 mg/L compared to typical value of around 27 mg/L for traditional works without TN permit limits.

3.7 Treatment works upgrades are difficult and complex to plan and deliver in the context of three of the main constraints:

- There is little space at most works for the finished new infrastructure
- The existing works has to continue to operate during the upgrade and there is little room for this and the working space needed to construct the new infrastructure.
- The investment cashflow is regulated by OFWAT against bill increases and notwithstanding this there are a finite number of specialists to plan and deliver this so there can only be a limited rate at which the upgrades are delivered.

The economies of scale and immediate proximity to The Solent has dictated that it is the large coastal treatment works which have been prioritised by Southern Water in AMPs4-6 from 20005-2019. AMP7 investment and construction programme for 2020-2025 is now underway.

3.8 Wastewater Treatment Works (WwTW) upgrade programme is ongoing but in short it is not realistic to simply add a TN limit to existing permits as there will be no immediate change in performance of existing WwTWs. The upgrade programme will take decades to eventually deliver across the board improved TN performance.

3.9 The NEv4 methodology is aimed at planning permissions for proposed developments and does not address agricultural practice or the water industry AMP process. The NEv4 methodology is built off a single fundamental premise. This assumes that persons at work or using non-residential offices and commercial/retail premises must also live in the catchment. In the round this is a reasonable basis on which to look at the total sewage volume. However in zero rating commercial development from nitrogen loading it inherently means that residential developers fund the nitrogen nutrient mitigation of all non-residential commercial development in the region.

3.10 As set out in paragraph 3.4 there is a massive amount of largely agricultural legacy nitrogen in the Chalk aquifer below the region which forms the base flow to the rivers flowing into The Solent. The drinking water supplies in southern Hampshire are drawn from this groundwater and these rivers, and this typically contains 7-8 mg/L of nitrogen that does not stem from the proposed developments. The previous NEv2 methodology did not recognise that this represents around 85% of the nitrogen returned to the water environment from upgraded WwTWs and around 30% from traditional WwTWs. NEv4 gives a 2 mg/L allowance ie about 20% on upgraded WwTW effluent and 7% on traditional WwTW discharges. Whilst this is only partial recognition it is better than the previous NEv2 that made no recognition at all. In effect residential developers will therefore also be funding the mitigation of the unrecognised legacy nitrogen predominantly from historic agricultural practices.

3.11 Natural England nitrogen assessment methodology v4 March 2020 considers nitrogen for:

- 1) Land use with regard to nitrogen contained in surface water run-off and infiltration.
- 2) Sanitation with regard to nitrogen content in the final treated discharge from the WwTW serving the development.

The assessment compares pre and post development quantities on nitrogen for the land use (1) and sanitation (2) to establish a final figure and then adds a 20% buffer to this.

- 3.12 Natural England advise the NEv4 methodology is advised for all types of development that would result in a net increase in population served by a wastewater system, including new houses, student accommodation, tourism attractions and tourist accommodation.

4. Derivation of Sewage Load

- 4.1 The NEv4 methodology uses a blunt 2.4 average household occupancy and 110 litres per head per day (lhd) for housing.

5. Wastewater Treatment Works

- 5.1 Foul water discharge from the site will outfall to the public sewer network and is be conveyed to Southern Water's Thornham WwTW about 1.8 Km south east of the site. The WwTW undertakes traditional primary and secondary treatment and also undertakes nitrogen removal. Thornham WwTW has a Total Nitrogen permit limit of 10.0 mg/L. The WwTW and outfall location plans and works schematic are contained in Appendix B

6. Land Use Component

- 6.1 The site comprises 1.94 Ha of grazing paddocks. A grazing agreement has been in place since 2010 (10 years) as the site has been the subject of previous planning applications and developers have needed to secure the future cessation of grazing to facilitate implementation of a planning permission.
- 6.2 RH Partnership Architects drawing number P0768-RHP-00-ZZ-PL-A-1001 P1 identifies two different post development nitrogen character types. Some 1.42 Ha of urban fabric parcel to the western part of the site and some 0.52 Ha of public open space/flood storage area to the eastern part of the site.

7. Nitrogen Assessment

- 7.1 The NEv4 sewage loading, WwTW performance for TN and land use component have been input into the calculations contained in Appendix C.
- 7.2 The calculations also include the 2 mg/L allowance in water supply from NEv4 discussed in paragraph 4.41. The calculations also identify for the awareness of the LPA the actual nitrogen content removed from the environment in the water supply from the environment but not recognised in NEv4.
- 7.3 The calculations indicate that inclusive of the 20% buffer there would be a net nitrogen increase of **+32.84 KgTN/yr** from the proposed development.

8. Mitigation

- 8.1 NEv4 Figure 1 subdivides the overall Solent catchment into 6 sub catchments. A copy of this Figure is contained in Appendix C.
- 8.2 The site lies in the Chichester Harbour subcatchment and the proposed mitigation must also be located within this subcatchment so that neutrality is achieved within each subcatchment.
- 8.3 Section 5 of NEv4 sets out various types of hypothetical mitigation. However most of these are impractical for modest numbers of dwellings in an urban context where served by the public sewer. These are briefly discussed below:
- 8.4 Upgrade of the public treatment works is not viable in either cost or overall programme/time terms for small sites. Notwithstanding this the site is served by Thornham WwTW which has already been upgraded.

- 8.5 Installation of wetlands to treat foul and or surface water run-off from the site. Sites in urban catchments served by the public foul sewer network must connect to the public foul sewer unless this is too far away to be viable. In most urban contexts the sites are within viable distance of public sewer connection and application for an environment permit for private treated effluent discharge would be refused. Notwithstanding this treatment will not remove 100% of the nitrogen so whether by public treatment works or private treatment plant there will always be some residual nitrogen within the final treated foul water discharge.

The regulatory hierarchy for discharge of site surface water run-off requires that infiltration discharge (eg soakaways and permeable pavements) is provided where possible. Nitrogen treatment wetlands need to permanently retain water and are contrary to national drainage policy on permeable sites.

On non-permeable sites a proportion of the rainfall events that occur within a year are short showers that result in the ground being wetted but do not develop any run-off. The amount of annual run-off (Hydraulically Effective Rainfall, HER) is generally in the region of about 2/3 of the annual rainfall. The amount of annual surface water run-off for a site is therefore finite and limited by the impermeably surfaced area and site HER. Compared to foul water the nitrogen content is also much lower and NEv4 Appendix 2 indicates that 3mg/L is deemed representative. For crude general illustration purposes, assuming a positively drained area of say 200m² per dwelling and assuming an HER of say 500mm per annum with the prescribed nitrogen concentration of 3mg/L this would suggest the finite amount of nitrogen within the surface water run-off to be around 0.3 Kg per dwelling. The nitrogen removal efficiency of stormwater wetlands varies and NEv4 Appendix 4 indicates a median removal rate from studies to be 37%. It is therefore implicit from this that the total mitigation potential for the illustration would be around 0.1 KgTN/yr. The corresponding illustrative buffered TN discharge for treated foul water effluent from 1 dwelling would be of the order of 2.9 KgTN/yr for traditional WwTW and around 0.8 KgTN/yr for a dwelling served by WwTWs with nitrogen removal technology. It is generally not possible to mitigate more than 3-12% of the residual foul water impact by treating 100% of the site surface water run-off, so other mitigation will usually be required anyway.

Notwithstanding this the design of wetlands is a specialist activity and is not usually cost effective on a modest site scale. There is also a significant land take for the wetlands and there would be a requirement to set up and maintain a secured maintenance programme for operation of the wetland in perpetuity.

- 8.6 Some urban city authorities (eg Portsmouth CC) have a retrofit mitigation scheme whereby the increase in foul water effluent conveyed to the public WwTW from the site is offset by reducing the discharge from older existing housing stock by retrofitting modern water appliances. The site is located in the generally rural Chichester Harbour subcatchment and Havant BC are not known to be operating such a scheme.
- 8.7 The most common approach is one of land use offset whereby the increase in nitrogen at the site is offset by a corresponding reduction in nitrogen elsewhere in the subcatchment eg by change of use from farm land to woodlands or community open space etc. Some sites can achieve mitigation within their own site when farmland of relatively high existing nitrogen discharge is developed for housing such that the reduction in the nitrogen from the change in land use is greater than the increase from the new foul water loading. For all other developments the mitigation land and development land are at different locations. There are three potential approaches to securing the necessary mitigation land:
- i. The applicant already controls a suitable area of private land.
 - ii. Some LPAs already control such land and buy in to their scheme can be made.
 - iii. Buy in to a third party scheme

It is a requirement that the change in use at the mitigation site is legally secured in perpetuity and that necessary maintenance to ensure the new low nitrogen usage is also

secured. Whilst hypothetically a suitably sized piece of land could be privately procured at a suitable location and taken out of farming use to provide an offset reduction in nitrogen on that land in perpetuity, the urban south Hampshire location of the site, means this may be difficult to find as much nearby local land is similarly earmarked for potential future development. There are also likely to be confidence issues for the LPA in securing the perpetuity of this and questions as to future management. These confidences are satisfied in the current HIWWT scheme and it is likely to take time for LPAs to apply the same logic to independent proposals.

- 8.8 HIWWT have a mitigation scheme endorsed by Natural England. The anticipated cost of this is £2,000-£2,500 per kg plus legal fee of about £1,000. The anticipated costs for mitigation from HIWWT would therefore be of the order £65,000-£85,000 on this basis.

We understand from HIWWT that the scheme was presented to the Partnership for South Hampshire (PfSH) and is politically supported and is now working its way through LPA planning policy. Winchester CC issued a new positional statement in the last couple of weeks linking use of Grampian condition to the HIWWT scheme (and other measures) and we would expect other LPAs to use a similar vehicle in their jurisdictions.

Once LPAs start to grant planning permissions with pre-occupancy conditions that would link to the HIWWT scheme, then developers would be able enter contract with HIWWT and submit the contracts as the evidence to clear the planning condition.

At present the scheme is in its infancy and until appropriately conditioned permissions are granted HIWWT cannot enter contract with developers (as development funders will not outlay the significant financial sums involved until appropriate conditional planning is secure). Once the initial HIWWT offering is substantially sold and HIWWT can be confident of income their wider scheme plans can be rolled out, expanding the scheme coverage and capacity. We understand from NE that progression now rests solely with LPAs developing the appropriate condition wording and understand at the time of writing that NE expects LPAs to overcome this imminently.

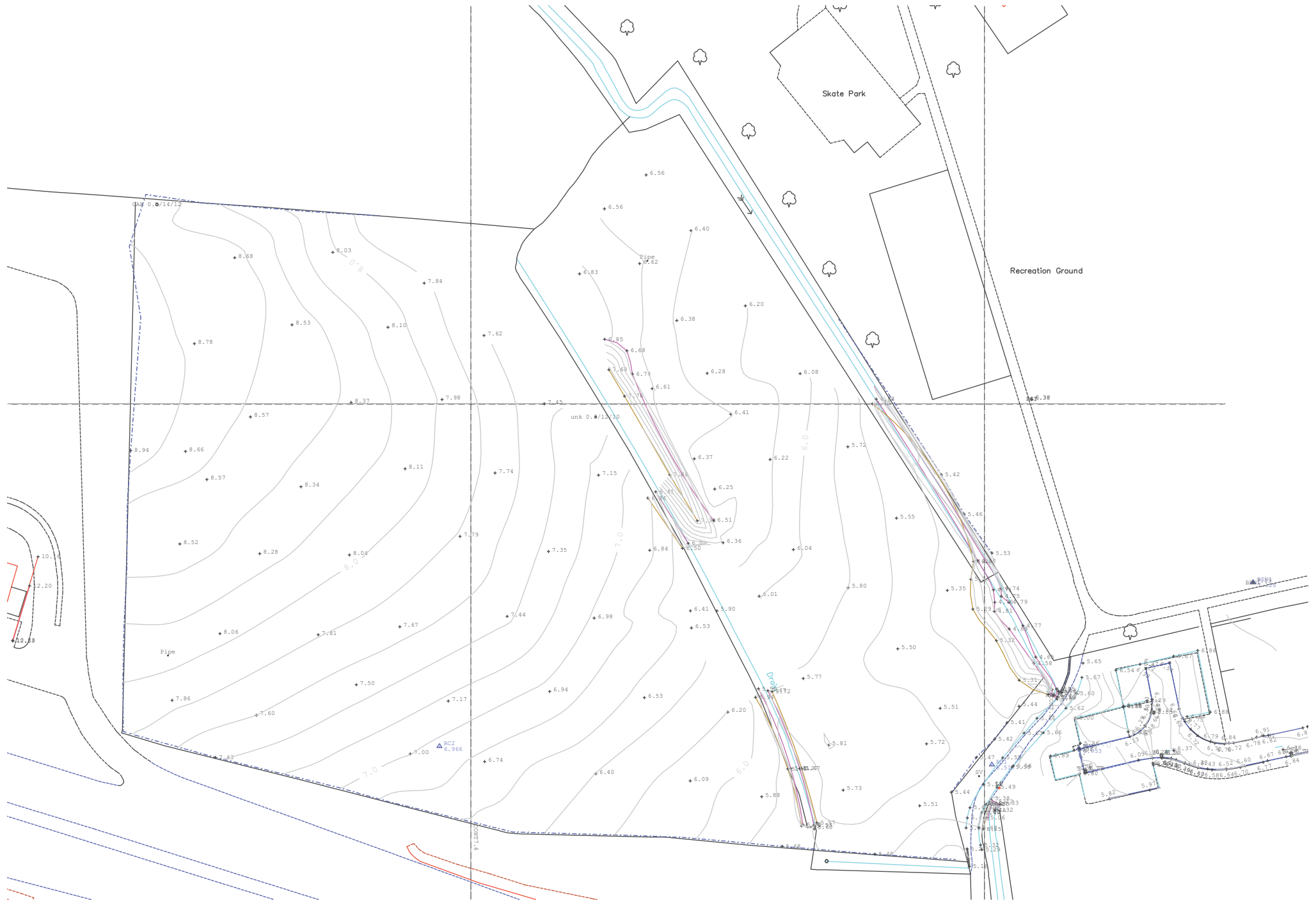
There is a further complication in that whilst the site is located within Hampshire and so within the operating area of HIWWT the Chichester Harbour sub catchment lies about 95% in West Sussex with only a very small area, including the site within Hampshire. It is therefore likely that a WT mitigation scheme for this catchment would in due course be operated by Sussex Wildlife Trust (SWT). However SWT have not yet promoted any mitigation scheme for this subcatchment, although it is understood the HIWWT rollout discussed above would also encompass a rollout to SWT using a similar template approach and documents.

We understand that Havant BC have for some time been considering using some of their own land holdings/interests to facilitate a similar scheme under their own control. However HBC have not yet reached a conclusion on this.

- 8.9 Whilst there are other options theoretically existing and others may come forward in the future, the commercial reality is that the proposed development would need to be put in use ie occupied as soon as it is built. It is therefore implicit that the mitigation condition would need to be cleared immediately prior to occupancy in cash flow and return on investment terms. It is also implicit that before beginning to outlay on the construction funders would want to enter a contract to secure the mitigation to prevent a subsequent delay to occupancy at the end of the construction period. At present the HIWWT/SWT scheme would appear to be the most favourable candidate for this. Planning condition (no 27) in the recently granted Winchester CC permission 19/00761-OUT does not specifically bind the applicant to the HIWWT scheme or any particular mitigation scheme. It is thought likely that this form of wording may become the adopted model for other LPAs.

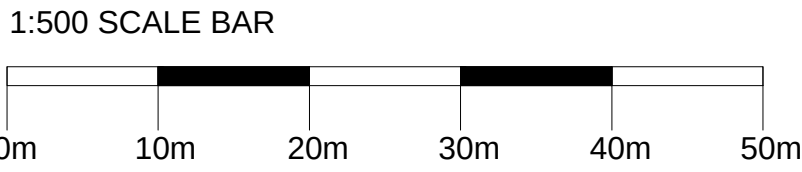
- 8.10 A copy of HIWWT literature dating from early January 2020 is contained in Appendix C for information. Things have progressed since this time and some of the content will now be out of date and we anticipate a more current version will become available once LPAs start to grant permissions.

Appendix A





01 Block Plan
1001 Scale: 1:500



This drawing is not to be scaled except for the purposes of planning. The architect is to be informed of any errors before work proceeds. The general contractor is responsible for checking all dimensions

Notes

To be read in conjunction with other submission reports and drawings in support of application.

Key



For proposed and existing tree information, hard and soft landscaping and roadway finishes please refer to Landscape Architect and Highways Engineer's information.

P1 04.07.2019
Issued for planning. JW SH

Rev Date + notes Drwn Chkd

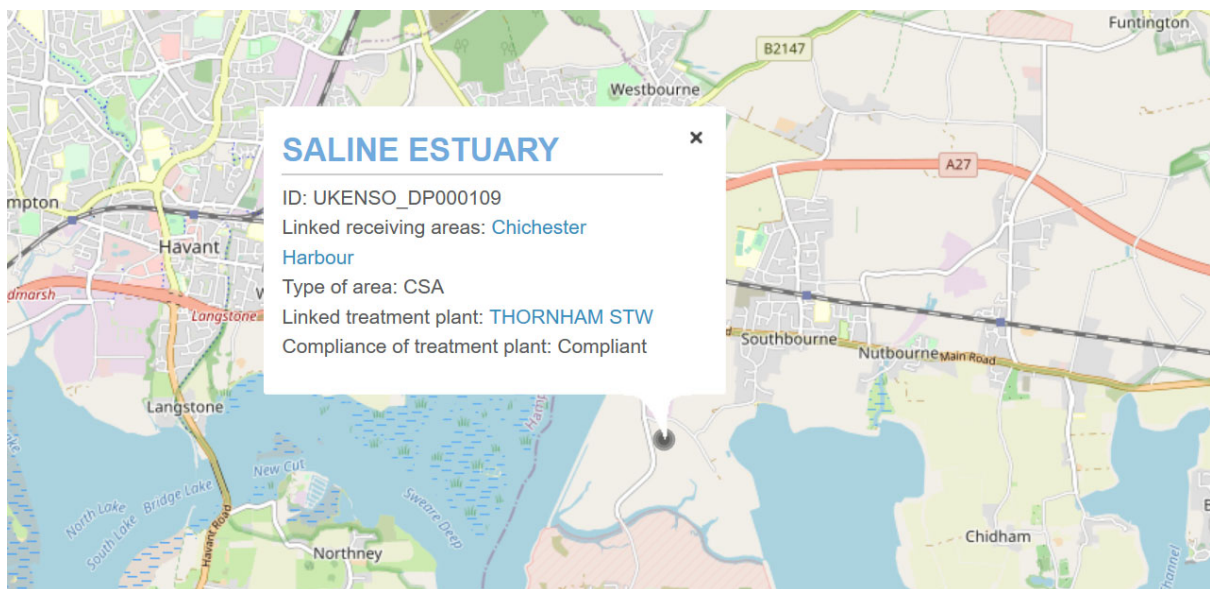
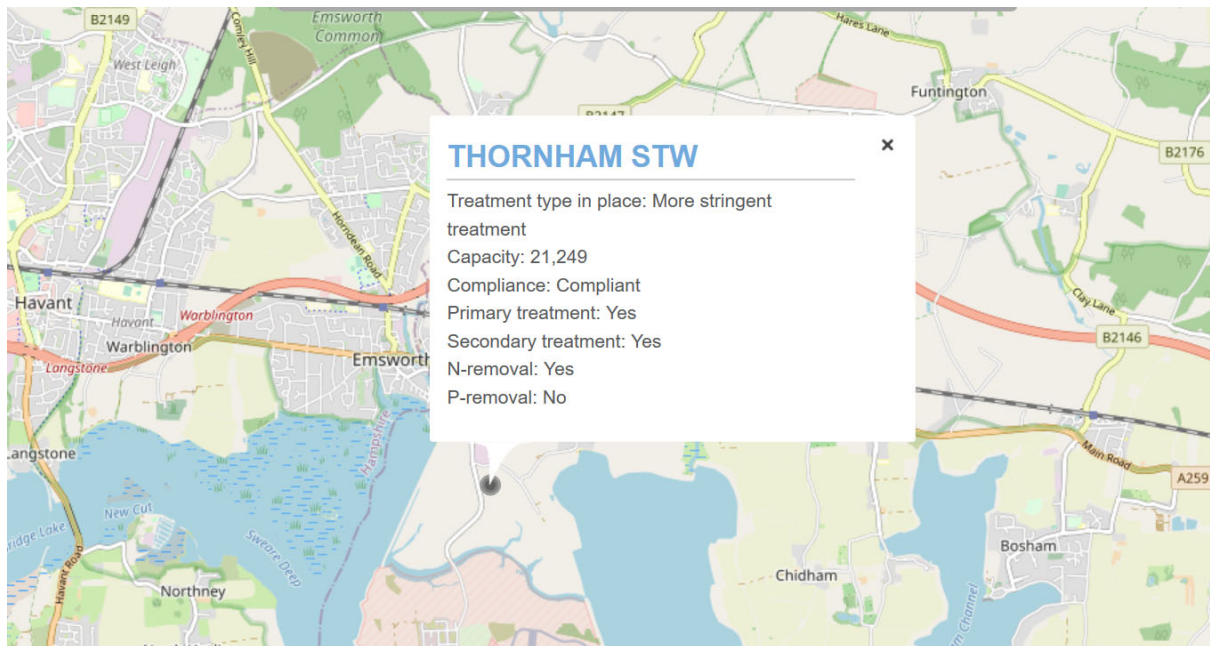
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Project
Land to the West of Coldharbour
Farm Road, Emsworth

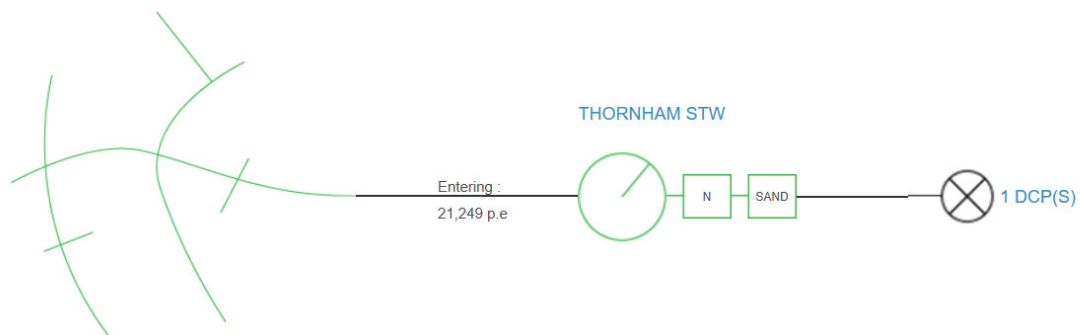
Drawing
Block Plan

Project	originator	volume	level	type	role	number	revision
P0768-RHP-00-ZZ-PL-A-1001	P1						
Scale(s) @ A1	RHP Project	Drwn	Chkd				
1:500	P0768	JW	SH				
Status							Suitability
Planning							S2

Appendix B



Agglomerations : 1



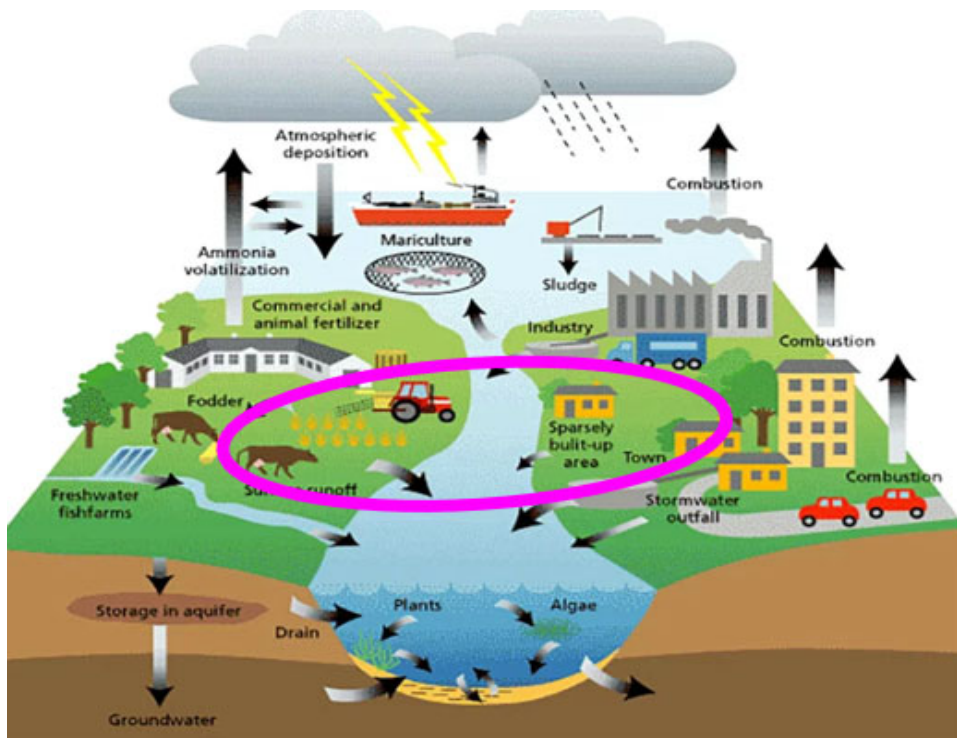
Appendix C

Site Ref

200041: Land west of Coldharbour Farm Road

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Development Nitrogen Assessment



Change in nitrogen content of runoff from the site

Existing Land use type:	Nitrogen Load (kg/Ha)	Area (Ha)	Nitrogen discharge (Kg/yr)
1 Lowland Grazing/paddock	13.0	1.940	25.220
2 N/A	0.0	0.000	0.000
3 N/A	0.0	0.000	0.000
4 N/A	0.0	0.000	0.000
5 Urban area	14.3	0.000	0.000
6 SANG	5.0	0.000	0.000
7 Open space	5.0	0.000	0.000
TOTAL SITE AREA (Ha)		1.940	25.220

Kg/yr Existing load

Land use load values taken Natural England values June 2015

Urban area = includes built form, gardens, road verges & any small areas of open space in the urban fabric

Proposed Land use type:	Nitrogen Load (kg/Ha)	Area (Ha)	Nitrogen discharge (Kg/yr)
5 Urban area	14.3	1.420	20.306
6 SANG	5.0	0.000	0.000
7 Open space	5.0	0.520	2.600
TOTAL SITE AREA (Ha)		1.940	22.906

Kg/yr Developed load

CHECK: Do existing and proposed land areas match? Yes

CHANGE IN NITROGEN LOAD FROM RUNOFF

-2.314

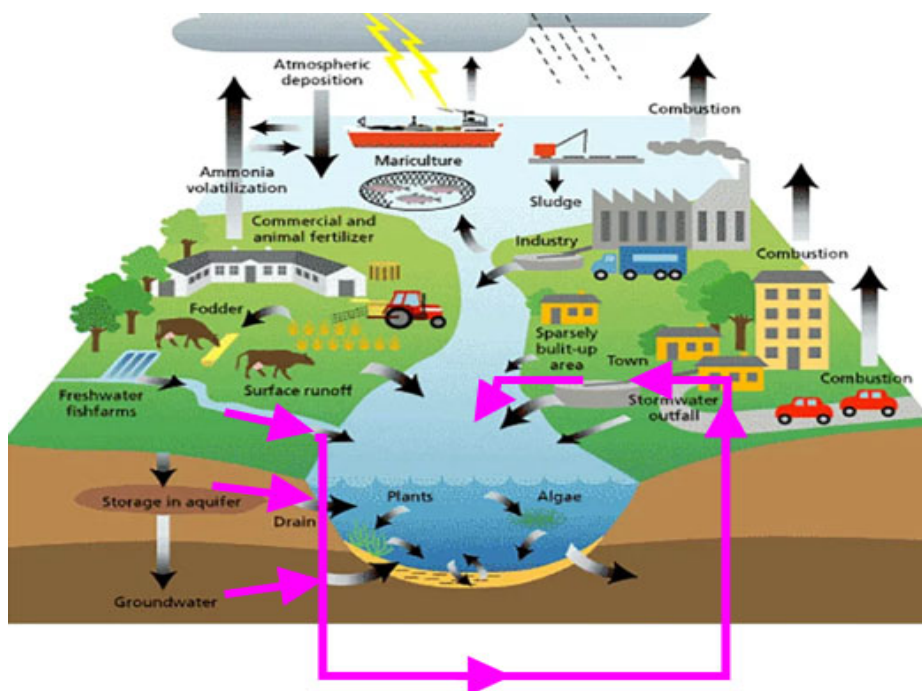
Kg/yr

Site Ref

200041: Land west of Coldharbour Farm Road

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Development Nitrogen Assessment



Nitrogen content in wastewater works outfall

Waste Water works	Thornham		
WWTW discharge permit limit for Total Nitrogen (TN)	10.0	mg/l	(27.0 default)
Discharge at 90% of permit limit	9.000	mg/L	100% at default
Deduct NEv4 allowance against water supply (2mg/L)	7.000	mg/L	

Number of dwellings proposed	44	
Average population per dwelling	2.4	
Water consumption per capita	110	litres/person/day
Daily water consumption	11616	x 365 days =
	4239840	L/year

NITROGEN IN WATER DISCHARGED **29.679** **Kg/yr** **Caution applies**

Mains water provider	Portsmouth Water	nitrogen comprises both nitrogen from development + not from the development but from the external environment.		
Water supply zone/works	PW Walderton			
	Nitrate NO ₃	Nitrite NO ₂	Ammonia NH ₄ ₃	
compound mg/L	29	0.005	0.016	
as nitrogen mg/L	6.55	0.002	0.012	
Nitrogen content taken from environment			6.568	Residual non development part
of which omitted from 2mg/L allowance			4.568	mg/L 19.37 Kg/yr

Water supply values taken from Water Company, water supply zone data August 2019

TOTAL CHANGE IN NITROGEN = **-2.314** & **29.679** = **27.365** **Kg/yr**

Apply 20% buffer ie factor by 1.2

+ values indicate increase to mitigate

- values indicate reduction ie tradeable credit

net increase-
mitigation required

x 1.20
32.838 **Kg/yr**
Caution applies

Nutrient Neutrality

The Wildlife Trust's scheme: *a Wilder solution*



Why is the Trust interested?



- We are keen to find a way of reducing nitrates entering the Solent.
- We think there is an opportunity to use the scheme to deliver very significant wildlife gain: our **Wilder 2030** aspirations.
- We want to find a solution that can be delivered quickly to head off the possibility of increased housing numbers being imposed on LPA's or planning by appeal.
- We want to avoid being offered lots of *ad hoc* bits of land (as is already happening).
- We take a long-term view on issues and we want to be seen as an reliable partner that can offer **Nature Based Solutions** at a reasonable cost.

The scheme principles

- The LPA or developer would calculate the nitrate offset requirement for their development(s) (or potentially their agreed Local Plan) with the calculation validated by Natural England.
- The Trust would sell nitrate credits at an agreed rate to developers. A credit being 1kg/N per year. (est. £2000 - £2500 per credit plus an admin fee of circa £1000).
- The Trust will purchase intensively managed arable land which we would remove from intensive production in perpetuity. The Trust would enter into a legally binding contract to underpin the agreement (probably s.106).
- Once secured the Trust would look to re-wild areas, create wildflower meadows or plant woodland to bring significant additional wildlife benefits to the areas concerned.

The scheme principles

- The Trust would aim to draw together as many local authorities /developers as possible to enable us to secure large strategic blocks of land, but we would also consider smaller more localised solutions.
- The Trust will target arable land in the Solent catchment in southern Hampshire or the north of the Isle of Wight. Priority will be given to land in floodplains, river valleys and land hydrologically linked to the Solent.
- There will need to be different schemes for developments that discharge via the coastal WWTW (Peel Common, Budds Farm, Pennington) and those that discharge via rivers or to ground water.

How it will work



- The Trust identifies land that is available to purchase or lease for a minimum of 80 years.
- Natural England agree the land can offset nitrates, the kgs that the site could offset and whether it can offset coastal or riparian discharges.
- The Trust works with developers and the relevant local authority to ensure that the LA will accept that the site will address the nitrates issues and will therefore remove the issue as a barrier to permission.
- Once the developer and LA are confident that the site will address the nitrate issues and no further hurdles to planning permission remain.

How it will work



Once the developer and LA are confident that the site will address the nitrate issues and no further hurdles to planning permission remain:

- The developer will transfer the value of the nitrate credits to the Trust.
- The Trust purchases the land and removes it from intensive agricultural production.
- The Trust enters into a S 106 agreement with the LA to deliver the offset.
- The LPA grant detailed planning permission without the need for Grampian conditions.

What we can't do



We cannot:

- Guarantee that nitrates will be offset in particular LPA areas (this principle now seems to be accepted).
- Purchase land before funds are transferred.
- Agree to manage lots of small scattered pieces of land acquired for offsetting.
- Run very small schemes offsetting only small shortfalls.
- Underwrite costs of long term management from core Trust funds.

Benefits of the scheme

- Relatively simple to administer.
- Monetises the issue into a single financial contribution.
- One off payments rather than continued ongoing admin for LPA and developers.
- Transparent and easy to audit.
- It can help large or small developers.
- Secured in the long term: **in perpetuity**.
- Quick to get going.
- Reduced financial risk for developers prior to permission.
- Potential to build up headroom which will ensure there are always surplus credits available.
- Flexible – it can be part of a suite of measures.
- Lots of added benefits for wildlife...











Progress to date



- Meetings with both LPA's and NE held.
- Broad support for the scheme from LPA's and NE.
- We have one site under offer which has been approved by NE for coastal discharges which we are using as a trial to work through any issues.
- The site will offset 1075kg of nitrogen.
- Outline agreement with a developer to purchase their entire offset.
- A range of sites have been offered to the Trust already with potential to offset 240 – 5000kgs of nitrogen.
- We are developing a contract with our lawyers (Coffin Mew) which will be used to underpin the relationship between developer and the Trust.

Issues still to resolve

- Natural England's position, on location of offset, is continually evolving, we need to nail down NE's view.
- There is some LPA concern about the enforceability of s106 agreements outside of their administrative boundaries. These concerns appear to be easing.
- Developers will need to have faith that LPA's will grant permissions once the Trust has purchased the land.
- The market for arable has become a little over-heated, we need to reduce this if we are to keep costs down.
- We don't know how many kg of nitrate we need to offset and how quickly.

Appendix D

ENGINEER'S INSPECTION CONDITIONS AND LIMITATIONS



1. The report is a record of a visual inspection carried out by, or under the direction of a Chartered Structural Engineer and must not be misinterpreted as a Structural Survey such as would be carried out by a Chartered Surveyor. The report is not a Valuation Survey.
2. The inspection is strictly limited to the items requested and these will be detailed in the report. No consideration will be given to any other aspects or parts of the building.
3. The report is confidential to the Client(s) and has been prepared to their instructions for their own purposes only and it is not permitted to disclose this report to any other parties (except the Clients own Solicitors, Surveyors, Building Societies or Estate Agents) without the prior consent of Aqua Callidus Consulting Ltd.
4. The copyright of this report remains the property of Aqua Callidus Consulting Ltd.
5. No liability for the contents of this report is accepted to any parties other than the Client(s). No parties other than the client should rely upon this report.
6. Unless specifically stated otherwise:-
 - a) Trial holes will not be excavated prior to the preparation of the report and the depth and construction of the foundations and type of sub-soil will not be inspected.
 - b) All external observations will be carried out by eye from the ground level only. Internal inspection is made within the limits of ready accessibility and it is not normal practice to lift floor coverings or floor boards, remove fixtures, panels or plaster, or move heavy items of furniture or bulky goods or materials.
 - c) No inspection will be made of any roof voids, floor joists, wall cavities, drainage pipework or any other hidden or inaccessible parts.
 - d) No timbers will be checked for damp, rot, infestation by wood-boring insects or other defects.
 - e) It should not be construed that any parts of the construction comply with the requirements of the Building Regulations Act or standard practice either current or as current at the time of original construction. No enquiries to any Authorities will be made.
 - f) No testing or enquiries into the presence of or susceptibility to pollution, contamination, radiation, methane, radon or other gases or hazardous substances has been carried out.
7. Unless specifically stated otherwise in the report, any recommendations for works given in the report are outline only and are to be confirmed or modified as appropriate at detailed design stage.
8. Where trial holes are specifically included in our instructions the condition of the footing and the founding soil relates only to the point of excavation and does not necessarily confirm a continuation of the same conditions throughout the non-inspected areas of the structure. Whilst such trial pits will usually provide a reasonable indication as to the general state of the foundations and ground conditions, these can not be determined with complete certainty.
9. Under the Construction (Design & Management) Regulations latest edition, the Client has obligations for ensuring Health and Safety arising from any construction work. If it is proposed to proceed with construction work based upon information or recommendations contained in this report, these regulations apply. Further details of any issues arising from our report or the Clients obligations generally are available on request.
10. Unless dealt with more specifically above the Association of Consulting Engineers Conditions of Engagement Short Form Agreement 2002 apply.