



Site Specific Proposals Draft Plan

Water Infrastructure Statement

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NORTH NORFOLK DISTRICT COUNCIL

LOCAL DEVELOPMENT FRAMEWORK
SITE SPECIFIC PROPOSALS DRAFT PLAN
SUBMISSION DOCUMENT

WATER INFRASTRUCTURE STATEMENT

1. Purpose of This Document

1.1 This document has been prepared to set out the current position in relation to the capacity of water resources (sewerage networks, waste water treatment works, and receiving water courses) to accommodate the proposed growth in North Norfolk. It has been prepared in response to objections from the Environment Agency and Natural England to the Site Specific Proposals Draft Plan and has involved input from both organisations and Anglian Water Services (AWS). It sets out the background to the Site Specific Proposals document and how available information, notably the Review of Consents process and the Water Framework Directive, has moved on since previous stages of the Local Development Framework (LDF). It presents the latest information from the Environment Agency and Anglian Water Services in terms of the capacity of water resources to accommodate planned growth in North Norfolk.

2. Overview

2.1 New development has the potential to affect water quality, primarily through increased levels of nutrients being discharged into receiving environments. In North Norfolk two of the receiving water courses, the River Wensum and the Broads system are internationally important wildlife habitats which are subject to specific protection. Discharge of additional treated water and potential future enhanced quality standards arising from the Water Framework Directive are identified as possible constraints on the quantity and timing of development in North Norfolk and need to be investigated further.

2.2 Additional work has been carried out since publication of the Site Specific Proposals (SSP) Draft Plan to further investigate the potential impact of proposed development on water quality. This has shown that whilst the growth proposed in Cromer, Hoveton, North Walsham, Sheringham, Stalham and Wells, together with the villages, is not currently constrained by water quality issues, a proportion of the growth proposed for Fakenham and Holt can not currently be accommodated within the existing Waste Water Treatment Works (WwTW) discharge consents. Alternative waste water treatment / reduction / disposal mechanisms will therefore need to be found if the full level of growth proposed in Fakenham and Holt is to be accommodated.

2.3 The current quality consent limits for all Waste Water Treatment Works will be reviewed, and if necessary tightened, as part of the next review of water company prices. This review, and subsequent consent changes, will come under the requirements of the Water Framework Directive (WFD) to prevent deterioration or achieve 'good status' of all watercourses and will apply to all water quality parameters. Consent modifications could be made as early as 2015 and may constrain the operation of WwTWs with regards to further growth. Further information on this issue is unavailable at this time.

3. Background

3.1 Limited capacity in WwTWs is a common issue arising across Norfolk and beyond. This can apply to the current consented volumetric capacity, the process capacity (the physical capabilities of the equipment on site) and / or whether the WwTW is already operating at 'Best Available Technology Not Entailing Excessive Costs (BATNEEC)'. This issue is complicated by levels and timing of public and private sector investments in foul water infrastructure (developers cannot fund improvements to WwTWs).

3.2 At the recent examination into the Breckland Core Strategy, where the Environment Agency (EA) had objected to the scale of growth and the ability to dispose of waste water, all parties agreed a 'Statement of common ground on water quality matters'¹. This recognised that the issue of waste water was challenging and requires work at the boundaries of current technology, but concluded that there was a *reasonable prospect* of wastewater treatment infrastructure being provided within the plan period to deliver the proposed development. Similar issues have arisen through consideration of the Greater Norwich Core Strategy (see www.gndp.org.uk for relevant evidence studies).

Regional Plan

3.3 The East of England Plan requires that at least 8,000 dwellings are delivered in North Norfolk between 2001 and 2021. The Regional Plan was subject to Appropriate Assessment during its preparation, which identified that adequate water resources and infrastructure needed to be in place to accommodate the growth proposed across the region. It specifically identified that Fakenham Sewage Treatment Works (STW) needed to be upgraded but did not identify any specific constraints that would limit this expansion, nor the upgrading of other STWs that discharge to the River Wensum and its tributaries. It also identified that whilst a significant number of dwellings are proposed in the catchment of the Broads SAC there are strategic water initiatives, such as Catchment Abstraction Management Strategies and Catchment Sensitive Farming, which plan to protect the Broads and mitigate against the possible impacts of the planned growth. The Appropriate Assessment of the Regional Plan consequently concluded that the Plan would have no effect on the integrity of the Broads SAC, Broadland SPA or the River Wensum SAC in terms of water management.

3.4 However, since the Appropriate Assessment was finalised in 2007 understanding of water quality issues at the local level has moved on, due in part to the conclusion of the Review of Consents for the River Wensum SAC and Broads SAC/ Broadland SPA and also the introduction of the Water Framework Directive. The Appropriate Assessment did not (and should not have) consider potential impacts on the wider water environment, which is now required by the WFD.

3.5 The information presented in this Foul Water Infrastructure Statement represents the most up-to-date information, presented at the most appropriate scale, and relates to both Habitat Directive and WFD issues.

North Norfolk Local Development Framework

3.6 The North Norfolk **Core Strategy** was adopted in September 2008 and indicates the scale of growth expected in a number of selected settlements across the district to meet the regional housing requirement. Water quality issues were raised in the Appropriate Assessment of the Core Strategy and discussed through the examination, and it was agreed that, on the basis of the best available information at the time, policies² requiring

¹ Available at www.breckland.gov.uk or in the North Norfolk Examination Library [E33]

² Core Strategy policies SS6 – SS13

development to be phased until it had been demonstrated that there is adequate capacity in sewage treatment works were adequate to ensure no adverse impact.

3.7 It should be noted that the Appropriate Assessment only considered potential impacts on sites designated under the Habitat Directive. The WFD (which considers the wider water environment) was not considered or discussed in any great detail as part of the Core Strategy examination but it is now a key issue when considering the impact of growth on water quality.

3.8 The **Site Specific Proposals (SSP) Draft Plan** was subsequently prepared to identify individual site allocations that would deliver the expected growth. Sites for approximately 3,200 dwellings on newly allocated sites are identified (the rest of the growth is made up of future windfall and development that has already been built / permitted). The Draft Plan was published in June 2009 to seek comments on its soundness prior to submission.

3.9 Concerns about the impact of development on water quality were raised through the SSP Appropriate Assessment which recommended that further assessment of water quality and the capacity of existing discharge consents be carried out in order to fully assess the impacts on the integrity of designated sites. Criteria were therefore included in relevant site allocation policies stating that development would be dependent upon demonstration of adequate capacity in sewage treatment works.

3.10 The Environment Agency, Natural England and the Broads Authority responded to the SSP consultation raising concerns about the allocations in Stalham and Fakenham due to it not being demonstrated whether the proposals could be accommodated within the existing consents for the relevant WwTWs without detriment to water quality in the receiving watercourses, which are designated SACs. They said further investigation was required into the environmental capacity for growth and to investigate the options for sustainable solutions to ensure no detriment to water quality with regard to both the Habitat Directive (HD) and WFD. Alternatively, it would need to be demonstrated that there were alternative receiving environments in the district to meet the housing target without detriment to water quality and designated sites.

3.11 In the period between receipt of these comments and submission of the SSP document the Council has investigated these issues with Anglian Water Services (AWS), the Environment Agency (EA) and Natural England (NE). Meetings have been held to explore the issues and information provided to allow key questions to be answered. In particular the potential impacts of the proposed growth have been modelled in greater detail.

4. Key Questions to be Addressed

4.1 The following questions need to be addressed to answer the concerns:

a) Can the proposed growth be accommodated within the existing volumetric consent of the relevant WwTWs?

The EA Review of Consents (RoC) considered the potential impact of all existing discharge consents on HD sites. Currently there is no mechanism for the EA to review, and if necessary, tighten existing discharge consents to meet the requirements of the 'no deterioration' objective of the WFD. Only when the proposed growth takes the flow of a WwTW above the existing consented volume, would the quality consent limits of the WwTW be reviewed and tightened if

necessary. Consequently, if it can be demonstrated that the proposed growth can be accommodated within the existing volumetric consent of the WwTW, it would not be currently constrained by the requirements of the HD (as this has already been assessed through the EA RoC) or the WFD.

Notwithstanding the above, as the consented volumetric capacity is used up by the planned growth coming on line, there may be a deterioration in current water quality. As the consent has been issued, the potential deterioration is deemed 'planned'. The potential impacts of this on HD sites has already been assessed as part of RoC.

b) Will development have an adverse effect on river quality downstream with regards to the objectives of the Habitats Directive and Water Framework Directive?

It is important that the objectives³ of the WFD are met in all waters. The indicative water quality consent limits that would need to be applied to the discharge consents to achieve the WFD requirements, and whether they are within 'Best Available Technology', is a key consideration for the EA.

c) Can existing and possible future limitations be overcome to enable the proposed growth?

Understanding this is important to provide the evidence required to assess whether the proposed development is deliverable. There is a need to understand the limitations i.e. whether the limitation is purely achieving water quality standards and/ or whether the process capacity of the WwTW and sewerage infrastructure capacity also presents limitations.

4.2 Since the Core Strategy was examined, further information has become available to investigate the issue of water quality, particularly the implementation of the WFD (the River Basin Plan was published December 2009) and the results of the Review of Consents process (the River Wensum SAC water quality outcomes were finalised and provided March 2009, the majority of the Broads SAC/ Broadland SPA water quality outcomes were provided March 2009 and all confirmed November 2009).

4.3 This Water Infrastructure Statement seeks to answer the key questions posed above and summarises the most up-to-date information available. In addition, two further points are considered:

- Is there adequate capacity in the foul sewerage network; and
- Is there adequate water supply to accommodate planned growth.

Key Question A: Can the proposed growth be accommodated within the existing volumetric consent of the relevant WwTWs?

4.4 A certain volume of treated water is consented to be discharged from each WwTW. Generally the consents provide for the discharge of a greater volume of treated water than is actually discharged and the consent holder (AWS) maintains a ten percent safety margin to allow for unpredictable seasonal flows that may otherwise lead to breach of the consent. There is currently some capacity, not including the ten percent margin, at all WwTWs in the District. This capacity, or headroom, can be used to service the needs of

³ To ensure there is 'no deterioration' in current classified water quality and 'Good Status' is achieved for all water quality parameters (ammonia, BOD and phosphorus)

new development without the need for new discharge consents. AWS has provided a summary of the current and projected flows for the main settlements, now and taking account of the planned growth (allocations and future windfall). This shows where there is sufficient headroom to accommodate the future growth and is set out in Table 1 (see Appendix).

4.5 This indicates that **there is sufficient headroom within existing consents to accommodate the full growth proposed in all main settlements except for Fakenham and Holt**. Furthermore in all locations there are no changes to existing consents required as a result of the recently completed water quality Review of Consents. Consequently, where there is capacity in the existing consent for the proposed growth then this can be accommodated within the plan period.

4.6 The levels of growth proposed in the **villages** can be accommodated. Whilst AWS has indicated there is limited process capacity to serve the villages of Corpusty, Blakeney, Roughton and Walsingham, the scale of growth (maximum of 26 dwellings to be allocated, 30 at Roughton) would not require a modification to the discharge consent and these WwTW's could sustain this level of growth.

4.7 Villages often feed into WwTWs at neighbouring towns and where relevant this growth has been included in AWS's calculations. Fakenham and Holt do not receive flow from any service villages, and towns which do receive flow from villages are well within the existing WwTW consent.

4.8 The proposed growth at **Hoveton** will feed into **Belaugh WwTW** which will also need to serve development proposed within Broadland District Council. The Greater Norwich Water Cycle Study (published alongside the Greater Norwich Joint Core Strategy in September 2009) looked at the impact of the growth in combination and confirms that not all of the proposed growth for the Belaugh WwTW catchment can be accommodated at Belaugh WwTW. It quantifies the number of dwellings whose waste water flows would need to be routed to the larger Whitlingham WwTW for treatment. The GNDPWCS goes on to demonstrate that Whitlingham WwTW can accommodate the additional flows from Belaugh and elsewhere within existing consent limits (equivalent to 28,178 dwellings), however it is understood that this would leave a very small amount of headroom.

4.9 The 184 dwellings proposed for Hoveton represents a small proportion of the total growth proposed in the Belaugh WwTW catchment, and less than 1% of the total proposed growth that may need to be routed to Whitlingham WwTW.

4.10 In addition, approximately 5,000 dwellings are proposed at a new EcoCommunity in Rackheath. The concept statement in respect of the EcoCommunity⁴ notes that wastewater treatment for the surrounding community is provided by Rackheath WwTW which is recognised as being at capacity. It therefore proposes to either provide a new WwTW or upgrade the existing one (Para 16.28). The concept statement also suggests that much less wastewater will be produced, through water efficiency measures and grey water recycling.

Summary: The evidence indicates that at this point in time, in terms of volumetric flows, all but 50 of the dwellings proposed at Holt and 221 at Fakenham can be accommodated without the need for new discharge consents.

⁴ Available at www.rackheatheco-community.com or in North Norfolk Examination Library [E11]

Key question B: Will development have an adverse effect on river quality downstream with regards to the objectives of the Habitats Directive and Water Framework Directive?

4.11 The current water quality status of various river stretches is set out in Table 2, alongside the water quality standards that must be achieved for the river stretch to achieve 'Good' status, both in terms of the current consent and the quality consent limits required for projected future growth.

4.12 As set out above, it has been demonstrated that the proposed growth for Fakenham and Holt cannot be accommodated within the existing consent for the local WwTWs. To accommodate the full level of growth the volumetric consent for the WwTWs would need to be increased and the quality consent limits adjusted accordingly to ensure no deterioration in water quality.

4.13 Using the projected flows provided by AWS (table 1) alongside current river quality (table 2) and WwTW current discharge quality, the Environment Agency River Quality Planning tool has been used to assess what WwTW consent limits would be required to meet the requirements of the Water Framework and Habitats Directives. Indicative consent limits have been calculated for both the current flow consent, and the future flow consent that would be required to accommodate all of the proposed development growth (where appropriate) and this is also presented in Table 2.

4.14 If the volumetric consents for **Fakenham and Holt** were to be increased to accommodate all of the proposed growth the water quality consent limits for phosphorus would need to be tightened beyond what is currently regarded as 'Best Available Technology Not Entailing Excessive Costs' (BATNEEC) in order to meet the objectives of the WFD and HD. Current understanding is that the feasibility, cost effectiveness and cost-benefits of operating a WwTW beyond 'BATNEEC' is limiting to the proposed growth. Consequently, the proposed development growth in Fakenham and Holt is currently considered to be constrained by the requirements of the WFD and/ or HD. Further information on this issue is unavailable at this time, and it is likely that further certainty on this issue will not be available until more work is undertaken by the EA and the Water Company in preparation for the next Water Company Price Review (2014). This issue is discussed in more detail in the next section.

4.15 Further consideration has been given to the discharge consents for **Corpusty, Blakeney** (Cley WwTW), **Roughton and Walsingham** (Great Walsingham WwTW), the outcomes of the EA RoC and the current WFD status of the downstream waters. Based on this, the EA considers it unlikely that even with a small increase in the consented volume of the discharges to accommodate the proposed growth (which AWS has confirmed is not required), the objectives of the WFD and/or HD could be met through tightening the quality consent limits within what is currently regarded at 'Best Available Technology Not Exceeding Excessive Cost'. Consequently, the proposed development growth in Corpusty, Blakeney, Roughton or Walsingham is not currently considered to be constrained by the requirements of the WFD and/ or HD.

4.16 While there remains uncertainty over precisely whether the proposed growth in **Hoveton** can be accommodated at **Belaugh WwTW**, a solution for dealing with 'excess' waste water flows in the catchment has been identified through the GNDPWCS (i.e. using Whitlingham WwTW). Consequently, the proposed development growth in Hoveton is not currently considered to be constrained by the requirements of the WFD and/ or HD, but it

is recognised that further discussion is required between neighbouring Planning Authorities to agree the way forward.

Planned Deterioration

4.17 In addition to the above it is important to highlight that at all locations there may be deterioration in current water quality as the proposed growth proceeds and as the consented volumetric capacity at the WwTW is used up. However, as the consent has been issued, the potential deterioration is deemed 'planned'. The potential impacts of this on HD sites have already been assessed as part of RoC.

4.18 The quality consent limits for these WwTW will be reviewed, and if appropriate tightened, as part of the next review of water company prices. This review and consent changes will come under the requirements of the WFD to prevent deterioration or achieve 'good status' (including achieving the objectives for 'protected areas') and will apply to all water quality parameters. Consent modifications could be made as early as 2015 and may require the WwTW to operate beyond what is currently regarded as 'Best Available Technology Not Entailing Excessive Costs', which could have implications for the long term deliverability of the proposed growth. It may be that the feasibility, cost effectiveness and cost-benefits of providing the infrastructure to support the proposed housing will become limiting to the housing that can be delivered.

Summary: The information contained in tables 1 and 2 has enabled the EA to comment on the acceptability of the proposed development growth in terms of water quality. This is set out in Table 3 and says that:

The full development growth proposed for Fakenham and Holt must be avoided unless alternative waste water reduction/ disposal mechanisms can be found. Development growth in other locations is not currently constrained by the requirements of the Water Framework Directive or Habitats Directive, although it should be noted that the phosphorus consent limit at Stalham could be reviewed and tightened beyond BATNEEC as part of the next review of water company prices.

4.19 At all locations there is a risk of deterioration in current water quality as the proposed growth proceeds. To address this, and to strive to achieve 'good status' under the WFD, the quality consent limits for all WwTW will be reviewed and, if appropriate, tightened as part of the next review of water company prices (in 2014). The consent modifications may require the WwTW to operate beyond what is currently regarded as BATNEEC which could have implications for the long term deliverability of the proposed growth.

4.20 Additional work needs to be carried out to investigate options for accommodating the full level of growth in Fakenham and Holt. The potential scope of this work is set out in the rest of this paper.

Key Question C: Can limitations be overcome to enable the proposed growth?

4.21 It has been demonstrated that the full development growth proposed for Fakenham and Holt must be avoided unless alternative waste water reduction / disposal mechanisms can be found. The EA suggest that the full development growth in both locations could proceed if technologically advanced techniques were employed to reduce / treat the waste water, the WwTW discharge points could be moved to an alternative receiving environment or other sewage works in the catchment were improved to compensate for the increased loads from Fakenham. They also comment that it is

considered unlikely that any of these options offer a technically feasible/ sustainable/ economically viable solution, but that there may be some merit in exploring further the possibility of discharging a proportion of the flows from the proposed development growth in Fakenham to the River Stiffkey rather than the River Wensum.

4.22 The Council considers that the above, along with a number of other possible options, could be explored. The possible options for addressing the restricted capacity of WwTWs in Fakenham and Holt include:

- a) Reducing water consumption / discharge per dwelling
- b) Treating waste water to a higher standard
- c) On-site treatment of waste water
- d) Reducing surface water entering foul sewers
- e) Routing waste water to alternative treatment works that discharge to a different catchment
- f) Controlling the type of employment uses on allocations to restrict heavy water users
- g) Reducing the amount of water received at WwTWs by separating existing surface water and sewerage
- h) Reducing the amount of growth proposed in Holt and Fakenham

4.23 It should be noted that these are only options and have not been appraised for deliverability in terms of sustainability, feasibility and whether there is funding available. Further investigation as to their deliverability will therefore be required.

5. Possible Mitigation Measures

a) Reducing water consumption / discharge per dwelling

5.1 A number of assumptions are made by Anglian Water when calculating projected flows, which are set out at the end of table 3 (e.g. a per capita consumption of 150 litres of water a day and an infiltration rate of 10% of domestic or employment flows). These are based on current figures and are considered by NNDC to provide a 'worst case' scenario as a number of practical measures could be used to reduce waste water flows, for example, through the Code for Sustainable Homes (CSH).

5.2 Core Strategy policy EN6 requires that by 2010 all new dwellings in the district achieve at least a three star CSH rating, rising to 4 star by 2013. Compliance with this standard would equate to water consumption of 105 litres per person per day. Even without this, the proposed Building Regulations for new housing limit consumption to 125l per person per day (equivalent to code 3). In addition, installation of water meters is mandatory in new homes, and Anglian Water has aspirations to increase the coverage of water meters in existing homes, which could reduce future water consumption in existing development.

5.4 Reducing the amount of water consumed per person reduces the flow sent to relevant WwTWs which will free up volumetric capacity. A reduction from 150 litres to 105 litres represents a 30% reduction, which would theoretically enable the full amount of growth to be accommodated. This needs further investigation however as there would still be the same quantity of phosphorous to be removed, so it would be more concentrated. In addition AWS comment that the reduction cannot be guaranteed and that as the new

housing is only a small proportion of all development it would have limited effect on the overall volume received at the WwTWs.

b) Treating the waste to a higher standard.

5.5 The Environment Agency have advised that the WFD is likely to require a tightening of consent limits which may require works to operate beyond what is currently understood to be BATNEEC, which raises uncertainty as to the deliverability of these improvements. The WFD applies to existing consent limits and will be difficult to achieve irrespective of future growth. As well as these technical limitations, there are also funding limitations to work. Improvements to WwTWs cannot currently be funded by developers, and need to be funded by Anglian Water. No improvements to Fakenham, Holt or Stalham WwTWs are included in the current AW funding cycle, and the next possible one is beyond 2016. It is possible that new technology (beyond current BATNEEC) will have been developed by then, however this is uncertain.

5.6 An alternative option may be to use on-site technology to treat wastewater prior to it being transferred to the WwTW. This would potentially reduce the treatment required at the WwTW as the water received would be partially cleaned, which may make standards more achievable. The viability and practicality of this would need to be explored and Anglian Water comment that it may have limited effect.

c) On-site treatment of waste water.

5.7 There are also options around complete on-site treatment of wastewater, such as septic tanks (on a small scale) or reed-bed systems or package treatment plants (on a larger scale). These have successfully been used in other developments, and are one of the options being discussed at Rackheath, and are a possible option in Fakenham and Holt. There would need to be an assessment of any combined impact if any discharge from an on-site STW discharged to the same receiving waters as a main STW

d) Reducing surface water entering foul sewers.

5.8 The Anglian Water calculations of predicted future flow include an assumption of 15 litres of surface water per person per day being discharged to the WwTW (10% of domestic flow). Core Strategy policies require sustainable drainage systems (SuDS) in new development which should reduce this. Also, it is mandatory at all CSH levels to ensure that the peak rate of run-off into watercourses is no greater for the developed site than it was for the pre-development site. It is also mandatory at all CSH levels to ensure that the additional predicted volume of rainwater discharge caused by the new development should be reduced using infiltration and/or made available for use in the dwelling as a replacement for potable water in WC flushing or operating a washing machine.

5.9 These measures should reduce the amount of surface water being received at WwTWs and measures could also be encouraged in existing development to reduce the amount of surface water being received by WwTWs, thus freeing up capacity (see also point g below)

e) Routing waste water to alternative treatment works that discharge to a different catchment.

5.10 Whilst the Fakenham WwTW cannot accommodate the full growth proposed at Fakenham, the Little Snoring WwTW (located just a few miles to the north) does have capacity and discharges to the River Stiffkey rather than the Wensum. The possibility of diverting waste water to this works could therefore be investigated. This is not without its own issues, however, as the River Stiffkey is a chalk river which are identified as priority

UK BAP habitats. The feasibility and cost-benefit of pumping flows to this works would also need to be considered.

5.11 There is also a WWTW at Sculthorpe that discharges to the River Tat. This is also part of the River Wensum SAC, but importantly upstream of the Fakenham WwTW discharge. The capacity at this works to take some of the flows from the proposed growth at Fakenham could be explored; however the costs of laying a pipeline and pumping the flows to Sculthorpe may not be feasible.

f) Controlling the type of employment uses on the allocations in Holt and Fakenham

5.12 Anglian Water has assumed an average employment flow rate of 0.75 litres per second per hectare. Criteria in the site allocations policies and conditions on planning permissions could be used to limit heavy water users from locating on the employment land in Fakenham, Holt and Stalham. This would reduce the amount of flow that could potentially be received at the relevant WwTWs, therefore freeing up some capacity.

g) Reducing the amount of water received at WwTWs by separating existing surface water and sewerage

5.13 Currently much of the sewage network in North Norfolk uses combined sewers where foul water is mixed with surface water. This means that surface water is treated at WwTWs to the same standard as foul water, often un-necessarily. If the two could be separated this would reduce the volume of flow received for treatment at a WwTW, therefore freeing up capacity. Opportunities to achieve this are likely to emerge during the plan period through redevelopment of Brownfield sites, however it is recognised that this is unlikely to be viable across a whole settlement.

h) Reducing the amount of growth proposed in Holt and Fakenham

5.14 The work carried out to inform this paper has concluded that all of the proposed growth in the majority of the settlements can be accommodated within existing consents, and that 82% and 91% of growth can be accommodated within the existing consents for Fakenham and Holt respectively. If no other options were suitable then the Habitat Regulations would require the growth to be reduced in order that development in these towns did not compromise the water quality requirements of the Water Framework Directive and/ or Habitats Directive. While this would result in under-delivery of housing in these locations there is capacity elsewhere in the district for this growth to be re-distributed to other settlements. The implications of this on the overall spatial strategy would need to be considered and it may not be desirable to simply re-allocate growth elsewhere for other reasons.

Summary: There are a number of possible options that may result in sufficient capacity being freed up to accommodate all the proposed growth in Fakenham and Holt. These options all require further investigation as to their deliverability and agents for the major allocations in these settlements have been instructed to investigate these options further.

In addition to the capacity of WwTWs to accommodate growth, two further points are considered below:

6. Capacity of the foul sewerage network

6.1 In addition to limited capacity in WwTWs, Anglian Water has commented that the foul sewerage network in several settlements also has limited or no capacity. This is often because the sewers are combined (i.e. contain foul and surface water). Once planning permission has been granted developers have a right to connect to a public sewer and an undertaker cannot deny connection even if additional discharges will overload the system. Recent cases⁵ confirm that the only way of achieving a deferral of a developer's right to connect, and therefore give the undertaker a reasonable opportunity to ensure that the sewer will accommodate the increased loading, is through the planning process. Consequently, LPAs must ensure that there is no development until the existing sewerage system can accommodate it, and this can be exercised through the use of Grampian planning conditions.

6.2 It is proposed to emphasise this constraint in the relevant settlement sections of the SSP in order that the issue is properly considered and dealt with at the planning application stage, and a minor modification to this effect is included in the Schedule of Minor Modifications (ref MM74 a-m).

7. Adequacy of water resources to serve new development

7.1 Increased levels of development are likely to increase demand for water unless existing demand can be reduced by positive demand management. Anglian Water's final Water Resources Management Plan (WRMP)

<http://www.anglianwater.co.uk/environment/water-resources/resource-management/> sets out the company's plan to manage water supplies over the next 25 years and has forecast housing growth to be in line with the East of England Plan. Anglian Water plans to implement options for resource development and demand management to meet this level of growth and ensure that supplies are maintained. This process will comply with the Habitats Regulations which ensures protection for European sites.

7.2 If in the future there was not sufficient headroom then Anglian Water would have to apply to increase their licensed abstraction. This is a statutory process under the Water Resources Act 1992 (amended by the Water Act 2003) and it also has to comply with the Habitats Regulations. If it is not possible to increase abstraction from existing sources it will be necessary for the Water Company to identify and develop other sources where resources are available and which will not result in detriment to European Sites.

8. Conclusion

8.1 This paper sets out the current situation in relation to the capacity of water infrastructure to accommodate the planned growth in North Norfolk. The latest available evidence shows that the proposed growth can currently be accommodated within existing consents in the majority of settlements (accepting planned deterioration). However there are known constraints relating to a proportion of the proposed development at Fakenham and Holt and further work is needed to investigate the situation. Discussions are ongoing with all relevant parties, and agents have been instructed to look into the specific issues raised in this report.

⁵ Planning Magazine, 22 January 2010, Legal Report, page 9.

8.2 The options set out in section 5 will be investigated to determine if a solution can be found that enables the full growth in Fakenham and Holt to be accommodated. In the meantime, however, it has been demonstrated that the majority of the growth can be accommodated, accepting a level of planned deterioration, under the current Discharge Consents standards. Core Strategy and SSP policies require that development will not occur until it has been demonstrated that there is adequate capacity in sewage treatment works, thus ensuring protection for water quality. Section 4.2 of the Core Strategy states that there is a need to phase development in order that the supporting infrastructure is available, and the Housing Trajectory takes account of the constraints when predicting when development may occur.

9. NNDC Comments

9.1 North Norfolk District Council notes the issues raised in this paper and is committed to investigating possible solutions.

9.2 A number of **minor modifications** are proposed to the SSP Draft Plan to reflect the up to date information. These are included in the Schedule of Minor Modifications (refs MM74 a –m) and include reference to limited capacity in the foul sewerage network and an emphasis on the constraints facing Fakenham and Holt.

9.3 Agents for the major allocations in Fakenham, Holt and Stalham have been instructed to investigate the options contained in section 5 and the Council is committed to joint working with the Environment Agency, Anglian Water Services, and neighbouring authorities to continue to increase understanding and work towards possible solutions.

9.4 The Council recognises that the full extent of development proposed at Fakenham, Holt, and potentially Stalham, may prove difficult to accommodate. There is nevertheless capacity at all three locations to accommodate much of the planned growth, and the Council considers that there is a reasonable prospect that future changes to technology will mean that one, or a combination, of the options outlined in this paper will result in the ability to accommodate the full growth in the future.

9.5 The distribution of development set out in the Core Strategy was based on a range of evidence including the role and function of the various towns, their needs and their capacity for growth. Holt and Fakenham were considered two of the more 'self-contained' settlements that offer a range of jobs and services and were therefore identified for a particular scale of growth. It would be difficult, and inappropriate, to re-distribute this growth to other settlements in North Norfolk which have other constraints to growth such as limited capacity in social infrastructure such as schools and employment and / or landscape concerns due to the presence of sensitive nationally designated landscapes.

9.6 The Council considers that the approach taken in the Site Specific Proposals Development Plan is sound. It gives high priority to habitat protection by including policies which delay development until environmental capacity is available.

Appendix 1

Table 1: Summary of current and projected flows provided by the water company by email on 27 January 2010 (see spreadsheet attached to email for complete set of figures). See below for the assumptions used for these calculations.

Settlement/ WwTW*/ Receiving Watercourse (WFD waterbody ID)	Current Consented Dry Weather Flow (DWF) (m3/day)	Current Measured Dry Weather Flow (DWF) (m3/day)	Available Flow in Current DWF Consent (m3/day) (with 10% seasonal variation allowance)	Potential Housing Headroom (assuming no employment growth)	Proposed number of new dwellings	Proposed Employment Growth (ha)	Projected Dry Weather Flow (from proposed housing & employment growth) (m3/day)	Volumetric Capacity for Growth (housing & employment)?	Projected Future Dry Weather Flow (DWF) (m3/day)
Fakenham/ Fakenham/ Wensum (GB105034055881)	3300	2631	339	1030	1251	7.0	911	No	3872
Holt/ Holt/ Glaven (GB105034055780)	1090	813	168	510	562	3.5	434	No	1356
Hoveton/ Belaugh/ Bure (GB105034050930)	2273	1401	645	1959	184	0.0	61	Yes	N/a
Stalham & Happisburgh/ Stalham/ Ant (GB105034051330)	2600	1305	1035	3144	367	3.5	366	Yes	N/a
Cromer & Sheringham/ Cromer/ Norfolk East (GB650503520003)	6106	4803	692	2103	1275	0.0	279	Yes	N/a
N. Walsham/ Mundesley/ Norfolk East (GB650503520003)	4386	1719	2228	6770	918	5.0		Yes	N/a
Wells/ Wells/ Stiffkey-Glaven (GB520503403600)	1125	469	544	1651	231	0.0	76	Yes	N/a

Table 2: Indicative quality consent limits to ensure compliance with the Water Framework Directive and Habitats Directive. See below for the assumptions used for these calculations.

Settlement/ WwTW*/ Receiving Watercourse (WFD waterbody ID)	Quality Consent Limits Required for Current Fully Consented Flow Scenario									Quality Consent Limits Required for Projected Flows/ Growth Scenario						
	Existing Consent Standards			To meet WFD 'No Deterioration' Objectives			To meet WFD 'Good Status' Objectives			To meet WFD 'No Deterioration' Objectives			To meet WFD 'Good Status' Objectives			To meet HD standards
	BOD (mg/l) (95%ile)	Ammonia (mg/l) (95%ile)	Phosphorus (mg/l) (50%ile)	BOD (mg/l) (95%ile)	Ammonia (mg/l) (95%ile)	WFD Phosphorus (mg/l) (50%ile)	BOD (mg/l) (95%ile)	Ammonia (mg/l) (95%ile)	WFD Phosphorus (mg/l) (50%ile)	BOD (mg/l) (95%ile)	Ammonia (mg/l) (95%ile)	WFD Phosphorus (mg/l) (50%ile)	BOD (mg/l) (95%ile)	Ammonia (mg/l) (95%ile)	WFD Phosphorus (mg/l) (50%ile)	HD Phosphorus (mg/l) (50%ile)
Fakenham/ Fakenham/ Wensum (GB105034055881)	25	5	1	25	4	0.7	25	4	0.7	21#	3.2	0.6	21#	6.7	0.6	0.4
Holt/ Holt/ Glaven (GB105034055780)	40	20	-	21	1.3	0.09	28	2.7	0.43	18	1.1	0.08	24	2.4	0.37	
Hoveton/ Belaugh/ Bure (GB105034050930)	30	10	1	30#	10#	1#	30#	10#	1#	N/a	N/a	N/a	N/a	N/a	N/a	
Stalham & Happisburgh/ Stalham/ Ant (GB105034051330)	15	11	1	15#	8	0.17	15#	11#	1#	N/a	N/a	N/a	N/a	N/a	N/a	
	Consent Standards more stringent than what is currently regarded as 'Best Available Technology, Not Entailing Excessive Costs' (BATNEEC)															
#	Indicative consent limit based on maintenance of current fully consented load - i.e. 'no deterioration' in total load.															

Table 3: Detailed Water Quality Comments, by Waste Water Treatment Works

Settlement/ WwTW*/ Receiving Water (WFD ID)	Environment Agency Interpretation	Comments	Possible further work
<p>Fakenham/ Fakenham/ Wensum (GB105034055881)</p> <p>And</p> <p>Holt/ Holt/ Glaven (GB105034055780)</p>	<p>The water company figures have confirmed that the full extent of the proposed development growth at Fakenham and Holt can not be accommodated within the existing volumetric flow consents for the respective Waste Water Treatment Works (WwTW) (Table 2).</p> <p>Based on the water company figures, 1030 houses and 510 houses could be accommodated within the existing volumetric consents for the WwTW at Fakenham and Holt respectively (based on there being no employment growth) (Table 2). This represents 82% and 91% of the proposed housing figures for Fakenham and Holt respectively.</p> <p>At Fakenham and Holt, under both the current flow and future projected flow scenarios, both the 'no deterioration' and 'good status' objectives of the Water Framework Directive (WFD) can be met for both ammonia and BOD within what is currently regarded as Best Available Technology Not Entailing Excessive Costs (BATNEEC) (Table 3).</p> <p>However, in both locations, the consent limit for phosphorus would need to be tighter than what is currently regarded as BATNEEC under both the current flow and future projected flow scenario to meet the requirements of the Water Framework and Habitats Directives (Table 3).</p>	<p>The full development growth proposed for Fakenham and Holt must be avoided unless alternative waste water reduction/ disposal mechanisms can be found. The full proposed development growth for Fakenham and Holt is constrained by the objectives of the WFD and (at Fakenham) the requirements of the Habitats Directive.</p> <p>1030 houses at Fakenham and 510 houses at Holt could be accommodated within the existing volumetric consents of the WwTW and therefore within the current constraints of water quality (if there was no employment growth).</p> <p>The full development growth in both Fakenham and Holt could proceed if technologically advanced techniques were employed to reduce/ treat the waste water, the WwTW discharge points could be moved to an alternative receiving environment or other sewage works in the catchment were improved to compensate for the increased loads from Fakenham. It is considered unlikely that any of these options offer a technically feasible/ sustainable/ economically viable solution. Notwithstanding this, there may be merit in exploring further the possibility of discharging a proportion of the flows from the proposed development growth in Fakenham to the River Stiffkey rather than the River Wensum.</p> <p>If the proposed dwelling figures for Fakenham and Holt were revised so that the total projected flows could be accommodated within the existing consent, the development growth would not be immediately constrained by the 'no deterioration' requirements of the WFD. However, it should be borne in mind that the phosphorus consent limits could be reviewed and tightened beyond BATNEEC as part of the next review of water company prices. This review and any consent changes will come under the requirements of the Water Framework Directive to prevent deterioration or achieve 'good status' and will apply to all parameters. Consent modifications could be made as early as 2015 and due to the potential costs involved, could have implications for the long term deliverability of the proposed growth. Further information on this issue is unavailable at this time.</p>	<p>It may be appropriate to consider alternative disposal options for the waste water arising from the proposed growth at Fakenham, e.g. discharge of part of the projected flows to the River Stiffkey rather than River Wensum.</p> <p>It would also be helpful to know how many houses could be accommodated at Fakenham and Holt in combination with the proposed employment growth.</p>
<p>Hoveton/ Belaugh/ Bure (GB105034050930)</p> <p>Stalham & Happisburgh/ Stalham/ Ant (GB105034051330)</p>	<p>The water company figures confirm that the full extent of the proposed development growth at these locations can be accommodated within the existing volumetric consents for the respective WwTWs (Table 2).</p> <p>At Belaugh, the quality consent limits for ammonia, BOD and phosphorus would not need to be tightened beyond what is currently regarded as BATNEEC to meet the requirements of the WFD (Table 3).</p> <p>At Stalham, the consent limit for phosphorus would need to be tighter than what is currently regarded as BATNEEC to meet the 'no deterioration' requirements of the Water Framework and Habitats Directives (Table 3), i.e. to maintain 'High' Status.</p>	<p>Development growth in these locations is not currently constrained by the requirements of the Water Framework Directive or Habitats Directive.</p> <p>It should be borne in mind, however, that the phosphorus consent limit at Stalham could be reviewed and tightened beyond BATNEEC as part of the next review of water company prices. This review and any consent changes will come under the requirements of the Water Framework Directive to prevent deterioration. Consent modifications could be made as early as 2015 and due to the potential costs involved, could have implications for the long term deliverability of the proposed growth. Further information on this issue is unavailable at this time.</p> <p>The implications for Belaugh waste water treatment works have been assessed based on the North Norfolk growth strategy only. The Greater Norwich growth strategy also incorporates projected flows for the Belaugh works. The deliverability of both growth strategies should be considered in combination.</p>	<p>In combination consideration should be given to the North Norfolk and GNDP and growth strategies that influence the Belaugh works.</p>

Settlement/ WwTW*/ Receiving Water (WFD ID)	Environment Agency Interpretation	Comments	Possible further work
Cromer & Sheringham/ Cromer/ Norfolk East (GB650503520003) N. Walsham/ Mundesley/ Norfolk East (GB650503520003) Wells/ Wells/ Stiffkey- Glaven (GB520503403600)	The water company figures have confirmed that the full extent of the proposed development growth at these locations can be accommodated within the existing volumetric flow consents for the respective Waste Water Treatment Works (WwTW) (Table 2).	<p>Development growth in these locations is not currently constrained by the requirements of the Water Framework Directive or Habitats Directive.</p> <p>Indicative consent standards have not been determined for these discharges as it currently remains unclear the extent to which the Environment Agency policy on discharges to coastal waters will need to change in light of the requirements of the Water Framework Directive. It is not anticipated however that any review and potential changes to these consents would present difficulties to the deliverability of the proposed growth. Further information on this issue is unavailable at this time.</p> <p>Coastal discharges also need to be assessed in terms of potential implications for designated bathing waters and shellfish waters. As the proposed development growth is within the existing consents, it is not considered that further consideration needs to be given to this at this time, however this may need to be reviewed in the future.</p>	
All Settlements and Associated WwTW, including those specifically discussed above and the 'Service Villages'		It should be borne in mind that in all locations, as the flow 'headroom' in the consents for the WwTW is taken up by the proposed growth coming on line, there is a risk that there will be deterioration in the downstream water quality. These consents will be reviewed, and if necessary the quality consent limits will be tightened under the next water company Price Review. This review and any consent changes will be driven by the requirement to meet the objectives of the Water Framework Directive. Consent modifications could be made as early as 2015 and due to the potentially large costs involved, could have implications for the long term deliverability of the proposed growth. Further information on this issue is unavailable at this time.	

Assumptions

- Per capita consumption 150litres per head per day (made up of 130 litres per head household and 20 litres per head non-household domestic (ie schools, pubs, offices etc))
- Occupancy rate 2.1 persons per house
- Infiltration 10% of flows (from domestic or employment)
- Employment Flow Rate 0.75 litres per second per hectare
- Domestic Flow rate 95% of per capita consumption (142.5litres per head per day)
- Current WFD Class Current WFD Class at 95% confidence (not necessarily the same as that presented in the River Basin Plan).