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04/IS2-L01

**Your ref:**

**Date:** 16 March 2020

Dear Sir/Madam

### **Greater Norwich Local Plan Regulation 18 Draft Consultation**

Thank you for your consultation on the stage C regulation 18 draft strategy and site allocations. We have provided our comments in the same format as the local plan itself.

#### **Emissions and climate change (page 23)**

Paragraph 86 should be expanded to state that opportunities for carbon sequestration through environmental habitat improvements should be sought on-site and offsite either through carbon offsetting or biodiversity net gain.

This section states that climate change mitigation is a cornerstone of the plan. Reducing CO<sub>2</sub> per capita is only one aspect of this. The plan should also seek to outline carbon sequestration measures, as well as strategic planning to ensure that there is greater resilience to temperature and rainfall increases. This policy should be underpinned by NLLP compulsory net gain.

#### **Flood Risk (page 24)**

The Flood Risk section includes Map 3 showing present day Flood Zones 2 and 3. However, the revised NPPF requires planning applications to include a Flood Risk Assessment if they are in the Future Flood Zones taking into account climate change. It would therefore be beneficial if the climate change enhanced flood outlines, as shown in the Greater Norwich 2017 SFRA, could be included in the flood risk section of the Local Plan. In addition, the title of Map 3 states 'fluvial flood zones', however the estuaries are at risk of tidal and fluvial flooding and so the map should be entitled 'fluvial and tidal flood zones'. Tidal flood zone 3 has an annual probability of 0.5% (1 in 200) so the key on the map which states 'Flood Zone 3 - 1 in 100' should also be revised.

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We agree that the plan will need to provide 'strategic level policies to address flood risk in new development'. We recommend that the flood risk policies include details on what would be required to be included within a Flood Risk Assessment (FRA), and define what is safe in different situations, and so provide greater clarity than that provided in the PPG.

The policy should include information on the following:

- Sequential Test
- Exception Test
- Sequential Approach – higher vulnerabilities on lowest risk parts of the site
- Safety requirements for actual and residual risk for different development types – floor levels, resistant/resilient construction, access egress, flood emergency plans
- Offsite flood risk – compensatory storage

The new Greater Norwich SFRA includes some details about the FRA requirements, but it would be good if the requirements could be echoed or expanded upon within the flood risk policy, or the SFRA referred to in the policy.

In particular, it is the responsibility of the LPA and their Emergency Planner to determine when an Emergency Flood Plan can ensure the safety of a development and when the development requires dry floors and/or safe access to enable it to be safe in a flood. It would be advantageous if the Local Plan's flood risk policy could stipulate these requirements for different development types at residual risk of flooding in a breach, and different development types at actual risk of flooding.

We require new more vulnerable development to have dry floors in the actual risk design fluvial 1% (1 in 100) / tidal 0.5% (1 in 200) annual probability flood event including climate change, and we require all development types to have refuge above the actual risk and residual risk 0.1% annual probability flood event including climate change.

We do not have minimum floor level requirements for less vulnerable development at actual or residual risk, or more vulnerable development at residual risk, instead they are allowed to be managed with Flood Response Plans and flood resistant/resilient construction, to the satisfaction of the LPA and their Emergency Planners. Therefore if the Local Plan could include details as to when this type of management of flooding is acceptable, or when there might be minimum floor level requirements for these type of developments to prevent flooding, then this is something that the flood risk policy should address.

## Ecology

Regarding paragraphs 87 to 91 referring to flood risk, we would like to see more natural functioning of the water environment, including natural flood management measures from slowing the flow and retaining water upstream to reconnecting floodplains in the lower reaches of rivers. This will help to restore natural processes and contribute to improving the water environment under the Water Framework Directive.

As we have previously advised, all new LPA developments should implement appropriate Sustainable Urban Drainage Systems (SuDS). We would like to see all new developments retaining as close to 100% of surface water as possible.

Given the importance of wetland habitat to the Greater Norwich area, this measure would help in protecting the water environment. SuDS provision will need to be included as part of the green infrastructure planning.

- Flood attenuation – helping to preventing surface water flooding, and flash flooding in the locality.
- Groundwater recharge – Storing surface water run-off and allowing it to be released slowly will help water to percolate back in to underground aquifers.
- Filtering Pollutants, allowing sediments to settle.
- Ecological benefits through creation of ponds, swales wetland areas and tree planting as part of SUDs schemes. This will create new habitats, and where land was previously industrial or agricultural, bring a quantifiable increase in ecological diversity. These features can also enhance the appearance and appeal of the built environment and have amenity value.
- A reduction in pressure on local sewerage infrastructure which may already be at capacity.
- Provide a source of water for urban activities such as gardening and bring benefits for recreation, education and wellbeing.
- [www.susdrain.org/delivering-suds/using-suds/suds-principles/suds-principals](http://www.susdrain.org/delivering-suds/using-suds/suds-principles/suds-principals)

Using surface water as a resource is likely to become increasingly important as pressures on water resources increase in the future. Change in rainfall through climate change, rising population and urbanisation are all driving factors. Capturing and using rainfall within the urban environment can provide environmental benefits as well as increasing amenity value

### **Environmental Assets (The Natural Environment and Landscape) (page 26)**

Paragraph 97 requires amending as Natura 2000 are European protected sites and not international as stated.

In terms of paragraph 100, county wildlife sites have no statutory protection and so needs rewording for example as “*sites identified as of local conservation importance*”. Local Wildlife rich habitats have no official designation but which are recognised as of biodiversity importance under S41 of the Natural Environment and Communities Act. A good example of this in the Greater Norwich area are chalk streams, reedbeds and fens which may not have designations.

This section as a whole could be more progressive and more ambitious to include statements around natural capital, green infrastructure and natural functioning ecosystems.

The plan would benefit from having a specific section for the water environment. A specific section would help ensure all issues are covered. This plan must link to the Anglian River Basin Management Plan and state that developments must carry out Water Framework Directive (WFD) compliance assessments following guidance in Planning Inspectorates advice note 18 and ensure that the development does not cause a deterioration in WFD status of any element. The plan must explain the ‘no deterioration’ objective.

The plan should also refer to the Catchment Based Approach and Broadland Catchment Partnership. The Broadland Catchment Plan could provide opportunities for mitigation and net gain through partnership working.

The water environment section should also reference any significant water management issue which is frequently cited as a reason for not achieving good if it is linked to a development.

### **Water (page 29)**

Water stress is impacting on chalk streams and other water dependent habitats in the Greater Norwich area.

Water Quality and protecting the local water environment must be referenced in this section. The Local Plan needs to acknowledge that growth and development in the area will put pressure on the water environment, especially in respect to meeting the tight environmental legislative targets set to protect bodies of water such as WFD and Habitats Directive. The "water" section should have a couple of sentences discussing this and highlight that the risks posed to the water environment primarily come from increased discharge volumes from wastewater discharges (sewage works/Water Recycling Centres) which will receive a significant increase in wastewater from development within the district. The Local Plan is an essential instrument to ensure that additional foul drainage arising from new development does not put local rivers (and existing properties) at unnecessary risk of pollution and/or flooding by sewage and/or wastewater.

It is also essential that this section acknowledges that most of the River Wensum and two of its tributaries are a designated SAC (protected area under the Habitats Directive) and therefore have more stringent conservation (including specific water targets) to meet. The importance of ensuring this protected site is not impacted by growth and development should be highlighted.

### **The Vision for Greater Norwich in 2038**

#### **Environment (page 34)**

In regards to paragraph 130, there is an enormous challenge in finding water for new developments. We don't currently have the technology with no consumptive use of water. Some technologies being considered could produce high amounts of carbon e.g. desalination, pumping water from other areas. This should be recognised here and the fact that we need to be thinking more holistically about water use for example increasing infiltration and groundwater recharge in headwaters. Using slow the flow techniques and retrofitting water saving measures to existing properties could be considered. We would suggest the following addition: "New water efficient buildings will have also contributed to the protection of our water resources and water quality, helping to ensure the protection and encourage enhancement of our rivers, the Broads and our other wetland habitats". This section should discuss the importance of ensuring that new development does not result in a breach of environmental legislation. A breach of legislation due to the increased polluting load from wastewater treatment works serving those developments.

It is not clear how greater efficiency in water and energy usage will minimise the need for new infrastructure – any new development will still require connection to facilities such as sewerage, mains water and electricity supply; as well as transport links. Water efficient building can contribute to the protection of water resources, however more people, more buildings and more infrastructure will inevitably lead to greater pressure on the broads and wetland habitats. The plan should insist that all new

development is required to aim for 100% retention of surface water through a variety of means. This is the opportunity to raise the bar for development in the GNLP area. The plan should be clear in stating that there is the need for new developments to incorporate water saving and grey water recycling technologies, sustainable heating solutions and good insulation for example.

Paragraph 133 should mention the importance of trees in providing climate resilience through increased percolation rates (reducing flood risk), shading and cooling rivers in as well as urban and rural areas (also contribute to net zero carbon emissions).

## **The plan's objectives**

### **Environment**

This section should ensure that the biodiversity crisis is just as pressing as the climate crisis and that the two problems are linked. It should be given more weight with separate plans and objectives.

## **Addressing Climate Change**

### **Climate Change Statement**

We support the climate change statement. This should also refer to protecting habitats that are currently stores of carbon using environmental enhancement opportunities to increase storage of carbon for example rewetting appropriate habitats and tree planting within developments.

### **Policy 2 – Sustainable Communities (page 57 & 58)**

We would like to see a target percentage for green infrastructure within the development parcel. Biodiversity Net Gain doesn't see, to be referenced in the table. In reference to point 9, water, in the key issues by policy 2 table on pages 57 and 58, this has not recognised the challenge ahead in finding water for developments and simply says that the cost of water efficiency measures is negligible and can be easily achieved. This is not necessarily the case as the water company has a duty to find water. However, there is no water available and there is a significant challenge in sourcing water for the growing population and new developments.

There is real opportunity to use the Net Gain principal to expand existing habitats, create new wildlife corridors through planting belts of woodland and hedgerows, wetland creation, expanding the buffers around riparian corridors etc. The kind of measures that might be required in order to address climate change will be needed within the development sites as well as over a much bigger scale within the whole plan area. We welcome that the plan supports "a catchment approach to water management and using sustainable drainage". It would be good to build on this in other sections referring to the catchment based approach and Broadland Catchment Partnership highlighting catchment plans and areas identified by the partnership for habitat enhancements in accordance with paragraph 174 of the NPPF.

We support the use of infiltration features and SuDS to reduce flood risk, but they should consider pollution risk to groundwater and surface water.' and make reference to our position statements G1 to G1 and G9-13.

<https://www.gov.uk/government/publications/groundwater-protection-position-statements>

## **The Natural Environment**

We would like to see a greater emphasis here on providing green infrastructure within developments with a specific percentage green infrastructure target. This will help reduce recreational dog walking impacts on natural habitats as well as enabling and supporting healthy lifestyles through local provision of green space for exercise and recreation with nature. The provision of green infrastructure within developments will help to increase infiltration and reduce runoff contaminated with pollutants entering our rivers.

### **Green Infrastructure Corridors (page 67)**

We welcome that most rivers and their tributaries have been recognised as green infrastructure/habitat corridors and support any opportunities to improve habitats within the corridors.

However, the green lines do not reflect the mosaic of habitats within them and where there are opportunities to revert agricultural land to natural habitats to mitigate against and compensate for the impacts of development. The plan should take a more strategic approach in order to create a coherent ecological network. The plan would benefit by being taken a step further by identifying which broad habitat types will be lost by developing the land allocated in the plan and identify where the compensation habitat could be created or through what mechanism it could be created.

### **Policy 3 – Environmental Protection and enhancement**

This policy contains a statement which states “development should deliver biodiversity net gain wherever possible”. Once the Environment Act has become legislation, this statement must be strengthened.

The policy around the natural environment must be clarified as it seems muddled. There should be separate statements for accessible green space (which could be integrated with biodiversity enhancements) and natural habitats (whose conservation value may be compromised by full public access). Overall, the importance of the natural environment in its own right needs to be recognised.

Paragraph 197 states that the Environment Bill is currently being considered in parliament. However, government policy has now made net gain mandatory and this should therefore be updated within the plan.

In regards to paragraph 191 - The creation of Country Parks on areas already identified as priority habitat under the NERC (for example Bawburgh lakes and Horsford) could bring both negative and positive impacts on these habitats. Sensitive management could benefit some species, however the impacts of increased visitor pressure, disturbance from dogs and so on, will have to be carefully assessed to ensure that there is no deterioration in the quality of these habitats.

We would encourage the plan to incorporate new areas that are currently of limited value to wildlife (agricultural land) and create new habitats and parks in these locations. These areas could be strategically planned to increase the connectivity of existing habitats. On suitable agricultural land, the creation of new parks would bring immediate

unquestionable net gain and could improve habitat connectivity as well as improving the green infrastructure network.

It is disappointing that the does not include any reference to environmental legislation. There needs to be reference in this section to WFD (outlining key objectives, no deterioration & improvement in waterbody status) and habitats directive which is particularly important to this district.

For the policy itself, we suggest adding the following text: "...Key elements of the natural environment include valued landscapes, biodiversity including priority habitats, networks and species, geodiversity, a high quality and plentiful water environment, high quality agricultural land and soils."

The policy should also include a paragraph around encouraging redevelopment of brownfield sites, with appropriate risk assessment to protect the water environment.

This policy discusses "enhances" but again does not reference WFD which is a key piece of legislation supporting and setting specific targets for enhancement. This needs amending.

#### **Policy 4 – Strategic Infrastructure**

We would expect to see within the "water" section of the policy 4, a specific policy or reference to ensuring that foul drainage infrastructure is provided in a timely manner ahead of occupation of new properties. This is hinted at in paragraph 227 "...Taking account of the above evidence, the policy therefore commits the Greater Norwich authorities to lobbying for the timely delivery of improvements to the waste water network by Anglian Water." This could be improved to say " taking account of the above evidence, the policy therefore commits the Greater Norwich authorities to lobbying for the timely delivery of improvements to wastewater infrastructure by AW in line with development time scales, ensuring there is sufficient capacity ahead of occupation of properties."

Wastewater infrastructure is the most important pressure on environmental water quality, and growth and development has the potential to reduce the efficiency of that infrastructure leading to major problems. Wastewater treatment and the quality of the water environment should be addressed in the Local Plan to ensure there is infrastructure to support sustainable growth and there is no deterioration of water quality. This point addressing in this section.

From looking at the site allocations, there seems to be significant amounts of development surrounding Aylsham. Aylsham WRC currently only has room to accommodate around 160 dwellings before it reaches capacity. This is a fraction of the development proposed in this area. We would therefore expect to see Aylsham WRC listed here with plans for sewerage infrastructure and WRC upgrades (there are no capacity upgrades planned for AMP7 here). Paragraph 314 states that Anglian Water Services has plans to increase capacity at Aylsham WRC - this is new to us and it would be useful to see some evidence of this.

Given the number of dwellings proposed, the Plan should outline the importance of early consultation with Anglian Water about potential options for foul waste in this area.

Paragraph 228 makes reference to the Norwich Water Cycle Study (WCS) which is reassuring to see. This paragraph would benefit from expanding on this to explain how outputs and recommendations from the WCS will be used to inform development within the districts.

## **Policy 7.1 – The Norwich Urban Area including the fringe parishes**

Section 5 of this policy specifically refers to ‘the Natural and Built Environment’. This policy should be strengthened and refer to the environmental policies within the River Wensum Strategy. It should also expand the section to broaden the scope for environmental improvements within the urban area, such as integration of SuDS with biodiversity features, providing swales with diverse flora, tree pits and green driveways for example.

This will help reduce runoff thereby protecting rivers from urban pollution as well as providing steppingstones connecting river habitats.

The River Wensum Restoration strategy (upstream from Hellesdon), where we are working to restore the whole of the River Wensum SSSI SAC, is relevant to development in the fringe parishes in that area e.g. Taverham, Drayton and Costessey.

## **Policy 7.2 – The main towns**

Paragraph 330 states that “Anglian Water plans to increase capacity at the local water recycling centre at Wymondham to serve growth”. There needs to be a clear policy added to this document, specifically regarding ‘Foul Infrastructure’. This policy should include a clause to ensure that foul drainage infrastructure and treatment is provided in a timely manner ahead of occupation of new properties. In order to protect the local water environment and existing households/residents from issues with foul flooding, planning permission should be granted once delivery of infrastructure within appropriate timescales has been secured.

For several of the "Main Towns" listed there is a statement similar to: "Anglian Water plans to increase capacity at the local water recycling centres at ...". It is good to see that Anglian Water are being consulted at this early stage on development. However, there are several WRCs where this statement has been added despite there being no scheduled upgrades to WRC treatment capacity in AMP7. Beyond AMP7, it is difficult for Anglian Water Services to commit to upgrades due to uncertainty surrounding funding availability for upgrades to treatment which is assessed through their Asset Management Plan process. We would suggest a caveat surrounding funding availability is added to this sentence.

Several of these WRCs are also close to their existing permit - so to accommodate the growth Anglian Water will need to apply for a new discharge permit. Given the sensitivity of a number of watercourses within the Greater Norwich area, there could be constraints on the permit due to very tight permit standards/permit standards not being achievable with conventional treatment. Therefore, it is essential that contingency options are assessed and the outputs and recommendations from the Water Cycle Study are used to direct growth within the districts. At this stage it should not be taken as a given that those WRCs will be able to accommodate all the growth until full capacity and impact assessments results are available and funding secured. These points reaffirm exactly why a separate foul infrastructure policy needs to be included in the local plan.

It would be useful to include a requirement: to demonstrate that there is, or will be, sufficient wastewater infrastructure capacity to accommodate each individual development. This would likely take the form of a Pre-Development Enquiry response from Anglian Water submitted in support of each new planning application.

## **Policy 7.3 – The Key Service Centres**

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The definition of green infrastructure in the Glossary seems to imply that the plan is not taking the broader definition to include natural habitats into account. The plan must specifically address mitigation and compensation for loss of natural habitats (this is also relevant to Policy 7.2). We would like to see a target % of green infrastructure to be provided within a development.

### **Site Allocations**

The quality of the water from new developments is our primary concern about those near chalk streams. Chalk streams are naturally low in nutrients and have good water quality. There are risks due to car washing, use of herbicides in gardens, run off from roads contaminated with salt and chemicals from cars. The plan needs to ensure that the provision of SuDS is appropriate and follows design guidance. New developments must undertake a WFD compliance assessment to ensure that they do not cause and deterioration and do not compromise our ability to meet Good WFD status. The plan should also identify areas (outside of land allocations) where small developments would need to rely of de-minimus abstraction 20m<sup>3</sup> per day (where there is no potable water supply). This kind of development would have negative impacts on an area already under water stress so these areas should be identified and development restricted.

### **Wymondham area site allocations**

Site allocations around Wymondham (GNLP2168, GNLP0525R, GNLP3013, GNLP0006, GNLP0515, GNLP1055) are all in the headwaters of the River Tiffey and its tributaries, the land allocations are adjacent to the streams. The Tiffey is a chalk stream NERC s41 habitat of conservation importance. We are currently working on several projects to improve the River Tiffey to good WFD status e.g. fish passage and habitat restoration. The developments must not compromise this. There must be a buffer between developed land (including gardens) and the river of 20 metres. A WFD compliance assessment must be undertaken to assess the impacts on the water environment, including but not limited to water quality of run off. We would welcome partnership working opportunities from any development to improve riparian habitats via Broadland Catchment Partnership (NPPF 174).

#### **GNLP2168**

This site allocation lies mainly in Flood Zone 1, with a corridor of Flood Zones 2 and 3 towards the south-western boundary of the site, along the Bays River. The flood zone in this location is JFlow so is not accurately modelled. The development must be sequentially sited to avoid developing within this small strip of flood zone, and the flood zone left open as flood storage. If any development is to be located within this flood zone then the river will need to be accurately modelled to determine the precise flood outlines and flood levels. The development will then need to be designed to be safe and not increase flood risk elsewhere, as detailed above. This should also be mentioned within the site allocation.

#### **GNLP0515**

It appears that the site boundary has been drawn to exclude the current and future flood zones just to the west of the site, and therefore the sequential approach has been correctly applied. There may be a small section of flood zones within the south western edge of the site boundary. Built development should be excluded from these flood

zones to maintain flood storage capacity, and the sequential approach applied to locate all development within flood zone 1.

### GNLP1055

There are a couple of ordinary watercourses running through the site with small flood zones associated with them. The flood zones are JFlow so are not accurately modelled. The development must be sequentially sited to avoid developing within these small strips of flood zones adjacent to the watercourses, and the flood zones must be left open for flood storage. If any development was to be located within these flood zones then the river will need to be accurately modelled to determine the precise flood outlines and flood levels. The development will then need to be designed to be safe and not increase flood risk elsewhere, as detailed previously. This should also be mentioned within the site allocation.

### **GNLP0336**

The River Bure, a chalk stream which is a S41 NERC habitat (NPPF 170 & 174), flows through the land allocated to the North East of Aylsham (GNLP0336), the development must not be on the flood plain as this will inhibit the natural functioning of the river and compromise the ability to reach Good WFD status. It is also an important wildlife corridor. We must ensure that any run off is the best water quality possible through use of appropriate SuDS etc. Natural habitats adjacent to the river and within the flood plain must be conserved and opportunities to enhance those habitats should be sought. We are working in partnership with the National Trust on the Upper Bure Riverlands project to restore river habitats in this area (<https://www.nationaltrust.org.uk/features/riverlands-how-we-keep-our-rivers-flowing>) and there is scope to carry out this kind of partnership work near Aylsham too.

### **GNLP0360**

The majority of the May Gurney and Deal Ground Site (GNLP0360) is within the flood plain of the River Yare, any development of the floodplain would compromise the natural functioning of the river and the WFD no deterioration objective. There should be a significant buffer between the development and the flood plain. We are working with Norwich City Council on the Yare Valley Parkway green infrastructure corridor, to ensure that the River Yare around the south of Norwich is as good as it can be and to enhance the conservation value of the nature sites along the corridor. Any sensitive development of sections of this land parcel outside of the flood plain should also restore natural habitats within the flood plain.

As stated above, the majority of the site lies in Flood Zones 2 and 3, both now and with the addition of climate change. A significant majority of Flood Zone 3 is shown on our modelling to actually be Flood Zone 3b Functional Floodplain, with an annual probability of flooding of 5% (1 in 20) and classed as 'land where water needs to flow and be stored in times of flood'. Residential and commercial development, classed as 'more vulnerable' and 'less vulnerable' development respectively, is not permitted in Flood Zone 3b so the majority of the site will need to be left undeveloped.

As with all development in Flood Zones, the more vulnerable development, and ideally the less vulnerable development too, will need to be designed with floor levels raised 0.3m above the flood levels for the future 1% (1 in 100) annual probability flood event with 35% and ideally 65% allowances for climate change. Refuge will also need to be provided above the 0.1% (1 in 1000) annual probability 25% climate change flood

levels. Compensatory flood storage will also need to be provided for any built development or land raising within the 1% (1 in 100) annual probability flood outline with 35% climate change to ensure no increase in flood risk elsewhere. This will require lowering of higher land in Flood Zone 1 to provide the compensatory flood storage. We note that there is an extant outline permission on the site, which met these requirements, although climate change allowances have since changed so the required floor levels may be different. This should be addressed as part of the reserved matters applications.

### **Norwich area site allocations**

There are many sites within Norwich which are adjacent to the River Wensum (GNLP2137, GNLP0409R, GNLP0360, GNLP0377, GNLP0401, GNLP0068, GNLP3053), firstly we need to ensure that SuDS within the development are sufficient to protect the water quality of the River Wensum and secondly any opportunities to improve riparian habitat to mitigate against the impacts of the development would help us to secure improvements necessary to meet good WFD status and help ensure that the development does not cause any deterioration.

#### GNLP2137

This site allocation lies mainly in Flood Zone 1 currently, with very small areas of Flood Zones 2 and 3 adjacent to the river. Once climate change is applied to the flood outlines, Flood Zones 2 and 3 extend further into the site. The development must be sequentially sited in future Flood Zone 1 where possible.

If development is required to be sited within these future Flood Zone 3 (1% annual probability with 35% climate change) and Flood Zone 2 (0.1% annual probability with 35% climate change) flood outlines then the more vulnerable development, and ideally the less vulnerable development too, will need to be designed with floor levels raised 0.3m above the flood levels for the future 1% (1 in 100) annual probability flood event with 35% and ideally 65% allowances for climate change. Refuge will also need to be provided above the 0.1% (1 in 1000) annual probability 25% climate change flood levels. Compensatory flood storage will also need to be provided for any built development or land raising within the 1% (1 in 100) annual probability flood outline with 35% climate change.

The requirement to take account of the future flood risk on the site, and design the development to be safe and not increase flood risk elsewhere, as required in the NPPF, should be mentioned within the site allocation.

#### GNLP3053

The vast majority of the site is Flood Zone 1. There is a very small area to the north east of the site, adjacent to the river which is Flood Zone 3 now and in the future. Therefore the sequential approach must be applied to avoid built development within this small area of flood zone to allow it to continue to provide flood storage.

The proposed bridge will need to be designed to be above the 1% flood level including 35% climate change to ensure that it does not obstruct flood flows or increase flood risk elsewhere. A Flood Risk Activity Permit must be obtained for the proposed bridge and any works within 8m of the main river Yare.

#### GNLP0377

The very east of the site allocation, adjacent to the river, lies in the present and future Flood Zones 2 and 3. Therefore there should be no development within this small section of flood zones, and the development should be sequentially sited in Flood Zone 1.

As with all development in Flood Zones, the development will need to be designed with floor levels raised 0.3m above the flood levels for the future 1% (1 in 100) annual probability flood event with 35% and ideally 65% allowances for climate change. Refuge will also need to be provided above the 0.1% (1 in 1000) annual probability 25% climate change flood levels. Compensatory flood storage will also need to be provided for any built development or land raising within the 1% (1 in 100) annual probability flood outline with 35% climate change to ensure no increase in flood risk elsewhere. This will require lowering of higher land in Flood Zone 1 to provide the compensatory flood storage.

#### GNLPO401

The site lies in present day Flood Zone 2, but once climate change is added to the flood levels, the majority of the site lies in Flood Zone 3a High Probability. If possible the development should be sequentially sited on land to the south in Flood Zone 1. If development is required to be sited within these future Flood Zone 3 (1%cc) outlines then the more vulnerable residential development will need to be designed with floor levels raised 0.3m above the flood levels for the future 1% (1 in 100) annual probability flood event with 35% and ideally 65% allowances for climate change. Refuge will also need to be provided above the 0.1% (1 in 1000) annual probability 25% climate change flood levels. Compensatory flood storage will also need to be provided for any new built development or land raising within the 1% (1 in 100) annual probability flood outline with 35% climate change to ensure no increase in flood risk elsewhere. This will require lowering of higher land in Flood Zone 1 to the south to provide the compensatory flood storage.

#### GNLPO409R

The site lies almost entirely in Flood Zone 2 present day, however once climate change is applied to the flood levels, the site lies mainly in future Flood Zone 3a. The development should be sequentially sited in future Flood Zone 1 where possible. If development is required to be sited within these future Flood Zone 3 (1% annual probability with 35% climate change) and Flood Zone 2 (0.1% annual probability with 35% climate change) flood outlines then the more vulnerable development, and ideally the less vulnerable development too, will need to be designed with floor levels raised 0.3m above the flood levels for the future 1% (1 in 100) annual probability flood event with 35% and ideally 65% allowances for climate change. Refuge will also need to be provided above the 0.1% (1 in 1000) annual probability 25% climate change flood levels. Compensatory flood storage will also need to be provided for any built development or land raising within the 1% (1 in 100) annual probability flood outline with 35% climate change.

We note that there is an extant planning permission for the site, to which we had no objection, so these requirements should have already been taken into account.

#### GNLPO068

This site allocation lies in present day Flood Zone 2, but once climate change is added to the flood levels, the entire site lies in Flood Zone 3a High Probability.

Therefore the more vulnerable residential development will need to be designed with floor levels raised 0.3m above the flood levels for the future 1% (1 in 100) annual probability flood event with 35% and ideally 65% allowances for climate change. Refuge will also need to be provided above the 0.1% (1 in 1000) annual probability 25% climate change flood levels. Compensatory flood storage will also need to be provided for any new built development or land raising within the 1% (1 in 100) annual probability flood outline with 35% climate change to ensure no increase in flood risk elsewhere. This will require lowering of higher land in Flood Zone 1 to provide the compensatory flood storage, which may be difficult to achieve, as the entire site is within Future Flood Zone 3a.

However we note that there is an extant permission on the site, and that the development has been designed not to impede water flow, and allow flood storage across the ground floor levels.

### **GMLP0415R-E and GMLP0415R-F**

Allocations adjacent to the River Yare of a nature reserve and Country Park (GMLP0415R-E, GMLP0415R-F) are welcomed, especially if we can secure riparian habitat improvements for this often overlooked chalk stream. In Marlingford just downstream we have been working to undertake natural flood management works, we could build on this partnership work to restore a better connection with the flood plain, plant trees and slow the flow.

#### GMLP0415R-E

The south of this site allocation, adjacent to the river lies in Flood Zones 2 and 3. Our detailed modelling shows that much of the area covered by Flood Zone 3 is actually Flood Zone 3b Functional Floodplain, with an annual probability of flooding of 5% (1 in 20) and classed as 'land where water needs to flow and be stored in times of flood'. As a county park would be classed as 'water compatible' development in Table 2 under 'Amenity open space, nature conservation and biodiversity' then this would be an acceptable land use within the flood zones, including Flood Zone 3b, providing that it is designed to: 'remain operational and safe for users in times of flood; result in no net loss of floodplain storage; and not impede water flows and not increase flood risk elsewhere'

Therefore it would be preferable if any associated built development is located within Flood Zone 1, and all development within the flood zones meets the above requirements.

#### GMLP0415R-F

The north of the site adjacent to the river lies in Flood Zones 2 and 3. Our detailed modelling shows that quite a lot of the area covered by Flood Zone 3 is actually Flood Zone 3b Functional Floodplain, with an annual probability of flooding of 5% (1 in 20) and classed as 'land where water needs to flow and be stored in times of flood'. As a nature reserve would be classed as 'water compatible' development under 'Amenity open space, nature conservation and biodiversity' then this would be an acceptable land use within the flood zones, including Flood Zone 3b, providing that it is designed to: 'remain operational and safe for users in times of flood; result in no net loss of floodplain storage; and not impede water flows and not increase flood risk elsewhere'

Therefore it would be preferable if any associated built development is located within Flood Zone 1, and all development within the flood zones meets the above requirements.

### **GNLP0415R-A, GNLP0415R-C**

There are two sites adjacent to the River Tud another chalk stream (GNLP0415R-A, GNLP0415R-C), we need to ensure that any water discharging from the development is as clean as possible and that SuDS are sufficient, a WFD compliance assessment must be undertaken. The River Tud has a population of white-clawed crayfish, an endangered species. If there is any opportunity to improve the river habitat to compensate for the additional run off then this would be welcomed.

### **GNLP0133-E**

The very south west of the site allocation, adjacent to the Broad, is in Flood Zones 2 and 3, both now and in the future with climate change. As this is only a very small part of the site then all built development must be sequentially sited outside of the flood zones in Future Flood Zone 1.

### **GNLP0140-C**

It appears that the site boundary has been drawn to exclude the current and future flood zones just to the east of the site, and therefore the sequential approach has been correctly applied.

### **GNLP0157**

It is not clear what is being proposed at Salhouse Broad (Tourism GNLP0157) near Woodbastwick, if there are to be any changes then a WFD compliance assessment must be undertaken to assess the impacts on ecological elements.

The east of the site adjacent to the river is Flood Zone 3 and Flood Zone 2. Part of Flood Zone 3 is also shown to be Flood Zone 3b on our modelling. Ideally all new built development should be sequentially sited to be located within the large area of Flood Zone 1 on the site. However if the tourism uses were classed as 'water compatible' then this would be an acceptable land use within the flood zones, including Flood Zone 3b, providing that it is designed to: 'remain operational and safe for users in times of flood; result in no net loss of floodplain storage; and not impede water flows and not increase flood risk elsewhere'.

### **GNLP0608**

It appears that the site boundary has been drawn to exclude the current and future flood zones just to the north of the site, and therefore the sequential approach has been correctly applied.

### **GNLP0264, GNLP3024 and GNLP0132**

Many other sites intersect water courses (e.g. GNLP0264, GNLP3024, and GNLP0132), they should undertake a WFD compliance assessment for the watercourse receiving the runoff, maintain a buffer of 20 m between the watercourse and gardens and secure opportunities for riparian habitat restoration.

## **GNLP0307**

The site GNLP0307 is adjacent to a stream with a significant section of culverted watercourse (1.2 km in total). We would support opening up this stream again as well as any contribution towards enhancing the natural habitats of the Yare Valley."

## **GNLP2034**

Freethrope WRC is currently flow non-compliant. However, we have received an application to increase the dry Weather Flow of the sewage works, which should bring it compliant with the permit. There should be no development until the capacity has been upgraded.

## **GNLP2060, GNLP2143, GNLP0311, GNLP0336, GNLP0297, GNLP0595 and GNLP0596**

There is not enough capacity in current permit at Aylsham WRC to accommodate this development and there are no plans for capacity upgrades in terms of flow in PR19. There are only plans to increase storage at intermittent CSOs. Development at this site will require phasing in line with upgrades to WRC and we will expect to see evidence of liaison with Anglian Water Services regarding this.

## GNLP0336

The northern quarter of the site adjacent to the river lies in Flood Zones 2 and 3, both now and with the addition of climate change. The development should be sequentially sited in future Flood Zone 1 wherever possible, to leave the flood zones as open land and able to accept flood water. The floodplain should be preserved as open space and opportunities should be sought to enhance the river corridor and natural environment here. Our access to the watercourse for maintenance purposes must not be impeded. If development is required to be sited within these present or future Flood Zone 3 (1% annual probability with 35% climate change) and Flood Zone 2 (0.1% annual probability with 35% climate change) flood outlines then the more vulnerable development, and ideally the less vulnerable development too, will need to be designed with floor levels raised 0.3m above the flood levels for the future 1% (1 in 100) annual probability flood event with 35% and ideally 65% allowances for climate change. Refuge will also need to be provided above the 0.1% (1 in 1000) annual probability 25% climate change flood levels. Compensatory flood storage will also need to be provided for any built development or land raising within the 1% (1 in 100) annual probability flood outline with 35% climate change to ensure no increase in flood risk elsewhere. This will require lowering of higher land in Flood Zone 1 to the south to provide the compensatory flood storage.

## **GNLP3052**

The areas adjacent to the river of this site allocation are Flood Zone 3, and our modelling shows that the majority of these areas are also Flood Zone 3b Functional Floodplain, with an annual probability of flooding of 5% (1 in 20) and classed as 'land where water needs to flow and be stored in times of flood'. As a country park would be classed as 'water compatible' development under 'Amenity open space, nature conservation and biodiversity' then this would be an acceptable land use within the flood zones, including Flood Zone 3b, providing that it is designed to: 'remain operational and safe for users in times of flood; result in no net loss of floodplain storage; and not impede water flows and not increase flood risk elsewhere'.

Therefore it would be preferable if any associated built development is located within Flood Zone 1, and all development within the flood zones meets the above requirements.

### **All sites - Environmental Permit for Flood Risk Activities**

Any site allocations that will result in works in, under, over or within 8 metres (m) from a fluvial main river and from any flood defence structure or culvert or 16m from a tidal main river and from any flood defence structure or culvert may need an Environmental Permit for Flood Risk Activities from the Environment Agency for works. Application forms and further information can be found at: <https://www.gov.uk/guidance/flood-risk-activities-environmental-permits>. Anyone carrying out these activities without a permit where one is required, is breaking the law.

We trust this advice is useful

Yours faithfully

**Mr Liam Robson**  
**Sustainable Places - Planning Advisor**