Your Ref: 20170095  My Ref: FWP/17/5/4433
Date: 28 March 2017  Tel No.: 0344 800 8020
Email: llfa@norfolk.gov.uk

Dear Christopher

Town and County Planning (Development Management Procedure) (England) Order 2015

Land South of Broadland Gate, Adjacent to Postwick Interchange, Postwick, NR13 5NP

Thank you for your further consultation on the above site, received on 22 March 2017. We note that the applicant has provided further information including the results of infiltration testing, and a maintenance schedule for the proposed SuDS features in response to our objection.

We have reviewed this further information and wish to make the following comments.

We maintain our objection to this planning application in the absence of an acceptable Drainage Strategy relating to:

- The management of surface water on the development. Insufficient information has been provided to demonstrate that the surface water system can accommodate the 1:1 and 1:30 rainfall events; that flooding does not occur during a 1:100 plus climate change allowance rainfall event in any part of a building (including a basement) or in any utility plant susceptible to water within the development; and that surface water can be discharged to the site via infiltration.

- In addition an alternative method of drainage has not been provided should infiltration rates in the location of the proposed soakaway prove to be unfavourable.

- Insufficient information has been provided regarding the future adoption and maintenance of the entire drainage system;

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Continued...
Reason
To prevent flooding in accordance with National Planning Policy Framework paragraph 103 and 109 by ensuring the satisfactory management of local flood risk, surface water flow paths, storage and disposal of surface water from the site in a range of rainfall events and ensuring the surface water drainage system operates as designed for the lifetime of the development.

We will consider reviewing this objection if the following issues are adequately addressed.

- The applicant should provide detailed infiltration testing in accordance with BRE Digest 365 in the location and depth of proposed infiltration features;

- The applicant should provide an alternative strategy for the disposal of surface water from the site should infiltration rates be found not to be favourable in the location of the proposed cellular soakaway;

- The applicant should submit calculations to demonstrate that the surface water system can accommodate the 1:1 and 1:30 rainfall events and that flooding does not occur during a 1:100 plus climate change allowance rainfall event in any part of a building (including a basement) or in any utility plant susceptible to water within the development;

- Plans showing the routes for the management of exceedance surface water flow routes that minimise the risk to people and property during rainfall events in excess of 1 in 100 year return period.

- Information regarding the future adoption and maintenance of the entire drainage system.

The applicant has provided the results of infiltration testing, however the tests were not undertaken in accordance with BRE365 standards (as only one fill was undertaken and one of the pits was not filled to 75% full). Also the test locations were not undertaken at the depths and locations of the proposed soakaway features. The information provided is therefore not sufficient to establish that drainage via infiltration at this site is viable.

In addition the applicant has not submitted any of the additional information requested in respect of points 3 and 4 above to demonstrate that the surface water system can accommodate the 1:1 and 1:30 rainfall events; that flooding does not occur during a 1:100 plus climate change allowance rainfall event; and the routing of exceedance flows.

The applicant has submitted a maintenance plan for the drainage system, but has not provided details to confirm who will be responsible for the drainage system ie a management company, any tenants on an equal basis, the landlord etc

If you, the Local Planning Authority review and determine this application against our advice you should notify us, the Lead Local Flood Authority, by email at llfa@norfolk.gov.uk.

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Continued...
Alternatively, if further information is submitted, we request we are re-consulted and we will aim to provide bespoke comments within 21 days of the formal consultation date.

Yours sincerely

Helen

Mrs Helen Underwood
Senior Flood Risk Officer
Lead Local Flood Authority

Disclaimer
We have relied on the accuracy and completeness of the information supplied to us in providing the above advice and can take no responsibility for incorrect data or interpretation, or omissions, in such information. If we have not referred to a particular issue in our response, it should not be assumed that there is no impact associated with that issue.
Your Ref: 20170095  
Date: 13 April 2017

Dear Christopher

Town and County Planning (Development Management Procedure) (England) Order 2015

Land South of Broadland Gate, Adjacent to Postwick Interchange, Postwick, NR13 5NP

Thank you for your consultations on the above site, received on 22nd March (FWP/17/5/4433) and on 28 March 2017. We note that the consultant has provided further information regarding the methodology supporting the infiltration testing and a revised maintenance schedule for the proposed SuDS features in response to our objection.

We maintain our objection to this planning application in the absence of supporting information relating to:

- There is insufficient information from the infiltration testing provided to evidence that the proposed soakaways are sized appropriately.

- The management of surface water on the development. Insufficient information has been provided to demonstrate that the surface water system can accommodate the 1:1 and 1:30 rainfall events; that flooding does not occur during a 1:100 plus climate change allowance rainfall event in any part of a building (including a basement) or in any utility plant susceptible to water within the development.

- Insufficient information has been provided regarding the future adoption of the entire drainage system.

Continued...
The design of the drainage system for exceedance flow management has not been considered. Plans showing the routes for the management of exceedance surface water flow routes that minimise the risk to people and property during rainfall events in excess of 1 in 100 year return period need to be provided. Finished floor levels should be at least 300mm above calculated flood levels.

**Reason**

To prevent flooding in accordance with National Planning Policy Framework paragraph 103 and 109 by ensuring the satisfactory management of local flood risk, surface water flow paths, storage and disposal of surface water from the site in a range of rainfall events and ensuring the surface water drainage system operates as designed for the lifetime of the development.

We will consider reviewing this objection if the following issues are adequately addressed.

- The applicant should provide detailed infiltration testing in accordance with BRE Digest 365 for the locations and depths of the proposed soakaways. The results from these investigations should inform the final calculations for the sizing of the soakaways at each location.

- The applicant should submit calculations to demonstrate that the surface water system can accommodate the 1:1 and 1:30 rainfall events and that flooding does not occur during a 1:100 plus climate change allowance rainfall event in any part of a building (including a basement) or in any utility plant susceptible to water within the development.

- Through direct correspondence with Topping Engineers the site owner has been named as responsible for the implementation and management of the proposed maintenance schedule. The LLFA advised Topping Engineers that this information should be submitted through the local planning authority. The LLFA have not had confirmation that this information has been formally submitted.

- Plans showing the routes for the management of exceedance surface water flow routes that minimise the risk to people and property during rainfall events in excess of 1 in 100 year return period.

Further guidance on the information required by the LLFA from applicants can be found at https://www.norfolk.gov.uk/rubbish-recycling-and-planning/flood-and-water-management/information-for-developers.

Yours sincerely,

Cathryn

Cathryn Brady
Assistant Flood Risk Officer

www.norfolk.gov.uk
Lead Local Flood Authority

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Dear Christopher,

Town and County Planning (Development Management Procedure) (England) Order 2015

Land South of Broadland Gate, Adjacent to Postwick Interchange, Postwick, NR13 5NP

Thank you for your re-consultation on the above site, received on 28th July 2017. We note that the consultant has provided further information, including microdrainage reports for the proposed soakaway features in response to our previous objection.

We maintain our objection to this planning application in the absence of supporting information relating to:

- There is insufficient information from the infiltration testing provided to evidence that the proposed soakaways are sized appropriately.
- The management of surface water on the development. Insufficient information has been provided to demonstrate that the surface water system can accommodate the 1:1 and 1:30 rainfall events; that flooding does not occur during a 1:100 plus climate change allowance rainfall event in any part of a building (including a basement) or in any utility plant susceptible to water within the development.
- Insufficient information has been provided regarding the future adoption of the entire drainage system.
- The design of the drainage system for exceedance flow management has not been considered. Plans showing the routes for the management of exceedance surface water flow routes that minimise the risk to people and property during rainfall events

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Continued...
in excess of 1 in 100 year return period need to be provided. Finished floor levels should be at least 300mm above calculated flood levels.

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We will consider reviewing this objection if the following issues are adequately addressed.

- The applicant should provide detailed infiltration testing in accordance with BRE Digest 365 for the locations and depths of the proposed soakaways. The results from these investigations should inform the final calculations for the sizing of the soakaways at each location.

- The applicant should submit calculations to demonstrate that the surface water system can accommodate the 1:1 and 1:30 rainfall events and that flooding does not occur during a 1:100 plus climate change allowance rainfall event in any part of a building (including a basement) or in any utility plant susceptible to water within the development.

- Through direct correspondence with Topping Engineers the site owner has been named as responsible for the implementation and management of the proposed maintenance schedule. The LLFA advised Topping Engineers that this information should be submitted through the local planning authority. The LLFA have not had confirmation that this information has been formally submitted.

- Plans showing the routes for the management of exceedance surface water flow routes that minimise the risk to people and property during rainfall events in excess of 1 in 100 year return period.

Further detailed comments can be found in the attached Annex.

Further guidance on the information required by the LLFA from applicants can be found at [https://www.norfolk.gov.uk/rubbish-recycling-and-planning/flood-and-water-management/information-for-developers](https://www.norfolk.gov.uk/rubbish-recycling-and-planning/flood-and-water-management/information-for-developers).

If you, the Local Planning Authority review and wish to determine this application against our advice you should notify us, the Lead Local Flood Authority, by email at llfa@norfolk.gov.uk so that appropriate conditions can be placed on the development.

Alternatively, if further information is submitted, we request we are re-consulted and we will aim to provide bespoke comments within 21 days of the formal consultation date.

Yours sincerely,

[www.norfolk.gov.uk](http://www.norfolk.gov.uk)
Cathryn

Cathryn Brady
Assistant Flood Risk Officer

Disclaimer
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Annex: Norfolk County Council LLFA Additional Information to LPA

<table>
<thead>
<tr>
<th>LPA Application Ref: 20170095</th>
<th>LPA: Broadland District Council</th>
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</thead>
<tbody>
<tr>
<td>LLFA Ref: FWP/17/7/4213</td>
<td>Applicant name: Monte Blackburn Ltd and Pigeon Investments Ltd</td>
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<tr>
<td>Site name/Description: Land South of Broadland Gate, Adjacent to Postwick Interchange, Postwick, NR13 5NP</td>
<td>Greenfield or Brownfield Development: Greenfield</td>
</tr>
<tr>
<td>Planning Stage: Full</td>
<td>Summary of Surface Water Drainage Proposed: Infiltration via soakaways</td>
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</table>

**Local Flood Risk:** Summary of Local Flood risks in the vicinity of the site

- The Environment Agency updated Flood Map for Surface Water indicates the proposed site has a low risk of surface water flooding (<0.1% Annual Exceedance Probability (AEP)).
- There are no watercourses known to exist within or on the boundary of the site.
- The site does not lie within an Internal Drainage Board (IDB) area for the regulation of ordinary watercourses.
- The applicant states in their Flood Risk Assessment that geological maps show this area comprises sandy gravels, no map extract is provided.
- We are not aware of any records of sewer flooding, however this would need to be confirmed with Anglian Water.
- There are no known incidents of internal property flooding within 0.5Km. There is one known incident of internal property flooding within 2.5 Km as recorded by NCC since April 2012.

**Policy:** What we expect relating to site drainage and flood risk management.

National planning policy framework (NPPF) states in paragraph 103 "Local planning authorities should ensure flood risk is not increased elsewhere and only consider development appropriate in area at risk of flooding where informed by a site specific flood risk assessment ... and give priority to the use of sustainable drainage systems".

Policy 1 (Addressing climate change and protecting environmental assets) of the Joint Core Strategy for Broadland, Norwich and South Norfolk (2011) states that, "Development will be located to minimise flood risk, mitigating any such risk through design and implementing sustainable drainage".

Policy 20 (Implementation) of the Joint Core Strategy states that, "A co-ordinated approach will be taken to the timely provision and ongoing maintenance of infrastructure, services and facilities to support development... Infrastructure that is essential to secure sustainable development will include ... sustainable drainage systems (SuDS)."

Applications which do not demonstrate how sustainable drainage has been taken into account in the design may be refused.
As Lead Local Flood Authority (LLFA), Norfolk County Council has recently adopted its Local Flood risk Management Strategy. Policy UC 10: Planning states that "the Lead Local Flood
Authority will raise objection to any developments or plans that might lead to an increase in flood risks. Policy UC 11: Securing Sustainable Drainage states that "the Lead Local Flood Authority shall, using all available legislative and regulatory measures, seek to secure the implementation of Sustainable Drainage Systems (SuDS)."

The government published a ministerial statement (HCWS161) on sustainable drainage systems on 18th December 2014 whereby decisions on planning applications relating to major development must ensure that sustainable drainage systems for the management of run-off are put in place, unless demonstrated to be inappropriate.

Additionally, the applicant must demonstrate that the proposed minimum standards of operation are appropriate and that there are clear arrangements in place for ongoing maintenance. The Planning Practice Guidance has been amended to support this policy change.

In drawing up their schemes developers should refer to the SUSDRAIN website (www.susdrain.org) and CIRIA Guidance (www.susdrain.org/resources/ciria-guidance), as this includes a wealth of detailed information on sustainable drainage to assist the developer in managing surface water drainage. Reference to the technical guidance in Defra/EA Rainfall Runoff Management for new Developments science report, Revision E provides applicants with advice on the management of surface water drainage and in particular to assist in sizing of storage elements for the control and treatment of surface water runoff. Applicants may also want to use the online tool from www.UKsuds.com to help derive preliminary calculations.

Guidance: Information for developers

Information for developers can be found on our website

https://www.norfolk.gov.uk/rubbish-recycling-and-planning/flood-and-water-management/information-for-developers

Assessment: Summary of assessment of flood risk and submitted drainage proposals

The Flood Risk Assessment / Drainage Strategy Topping Engineers, Flood Risk Assessment Project No: 16325, November 2016) submitted with the planning application, has been assessed against the National Planning Policy Framework (NPPF), Planning Practice Guidance, the SuDS Non-Statutory Technical Standards (NSTS) (March, 2015) and the policies of the adopted Norfolk Local Flood Risk Management Strategy as follows:

- The SuDS discharge hierarchy has been folllowed, and the drainage strategy is reliant on infiltration via two soakaways. Although the percolation report provided suggests infiltration is viable, it is not fully representative of the proposed features, and does not conform to BRE365 standards. The LLFA maintain that the applicant should provide detailed infiltration testing in the locations (and depths) of the proposed soakaways. These tests should also be in accordance with BRE Digest 365 standards.
• Microdrainage reports have been submitted for the two soakaway devices, with both indicating flood risk. The LLFA maintain that the results from the aforementioned investigations should inform the final calculations for the sizing of the soakaways at each location.

• Two microdrainage reports have been provided for soakaway 1. The first is titled 'soakaway 1' and drains an impermeable area of 0.53ha.; the second is titled 'soakaway 1 additional carpark' and drains an impermeable area of 0.82ha. The reasons for this are not clear and thus should be clarified.

• The LLFA maintains that the applicant should submit detailed designs, modelling calculations and plans of the of the entire drainage conveyance network (as opposed to just the infiltration features). These should show no above ground flooding on any part of the site during the 1 in 30 year critical rainfall even, and should show the depth (if any), volume and storage location of any above ground flooding from the drainage network ensuring that flooding does not occur in any part of a building or any utility plant susceptible to water (e.g. pumping station or electricity substation) within the development during the 1 in 100 year critical rainfall plus climate change.

• The applicant should provide calculations corresponding to the updated Environment Agency guidelines (Feb 2016) for climate change allowances, demonstrating the performance of the surface water drainage system for the Upper End allowance of 40% (as opposed to the 30% currently used).

• The design of the drainage system for exceedance flow management has not been considered. The LLFA maintain that plans showing the routes for the management of exceedance surface water flow routes that minimise the risk to people and property during rainfall events in excess of 1 in 100 year return period need to be provided. Finished floor levels should be at least 300mm above calculated flood levels.

• Through direct correspondence with Topping Engineers the site owner has been named as responsible for the implementation and management of the proposed maintenance schedule. The LLFA advised Topping Engineers that this information should be submitted through the local planning authority. The LLFA have not had confirmation that this information has been formally submitted. The applicant should submit this information to the LPA.

SuDS Standards: Summary of alignment to relevant Non-Statutory Technical Standards for Sustainable Drainage systems

S2 - As the proposed strategy is reliant on infiltration, it is inferred that runoff rates will not increase post-development for the 1 in 1 and 1 in 100 years rainfall event.

S4/S6 - As the proposed strategy is reliant on infiltration, it is inferred that runoff volumes will not increase post-development for the 1 in 1 and 1 in 100 years rainfall event.

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S7 - Not Met: The applicant has not provided any information to show there will be no flooding on site during the 1:30 + climate change event.

S8 - Not Met: no information has been provided to show that flooding will not occur in properties or utility plant during the 1:100 + climate change event.

S9 - Not Met: the applicant has not provided sufficient information to demonstrate how exceedance flows including a flow path generated off site and flowing across the site from east to west will be managed to avoid risks to people and property.