[redacted]

From: Amanda Scholes on behalf of Planning.Responses
Sent: 25 April 2019 08:29
To: Planning Scanning
Subject: FW: Windroos, Littlehampton

LU/24/19/DOC

From: Andrew Wood
Sent: 23 April 2019 12:23
To: Planning.Responses
Subject: FW: Windroos, Littlehampton

[redacted]

Andrew Wood MRTPI | Senior Planning Officer, Planning Department, Arun District Council |
Location: 1st Floor, Arun Civic Centre, Maltravers Road, Littlehampton, BN17 5LF
Internal: 37768 | External: +44 (0) 1903 737768 | E-mail: andrew.wood@arun.gov.uk

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From: Laura Gibbons
Sent: 12 April 2019 10:46
To: 'Adam Shephard'
Cc: Christian O'Brien; Rob Wilson; James Bragg; David Innes; Andrew Wood
Subject: RE: Windroos, Littlehampton

Adam,

Comments below in *green*.

Kind Regards,

Laura Gibbons, MEng, GMICE
Engineer (Drainage & Coastal)

Laura Gibbons | Engineer (Drainage & Coastal), Engineering Services, Arun District Council | Location: First Floor, Arun Civic Centre, Maltravers Road, Littlehampton, BN17 5LF

[redacted]

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From: Adam Shephard [redacted]
Sent: 11 April 2019 16:10
To: David Innes; Laura Gibbons; Andrew Wood
Cc: Christian O'Brien; Rob Wilson; James Bragg
Subject: RE: Windroos, Littlehampton

ARUN DISTRICT COUNCIL LU/24/19/DOC

Good afternoon Laura,

Further to your correspondence with David and Christian, they have asked me to forward on some further information to you. I have therefore provided below and attached some additional commentary and information which should provide you with the clarity that is required.

Please see attached the updated drainage layout plan and calcs. The updates include the following in order to address the comments:

- Changing the ring soakaway size to 2.4mØ x 3.6m dp which addresses the comment from about suitability of the strata. This is adequate in terms of modelling which is also attached.
- Updating the trench soakaway references to have specific numbering which tie in with the attached modelling outputs from Microdrainage for them

Whilst the Microdrainage calculations for the northern crate show that the half-drain time for the 1 in 100 year storm +30% storm is not adequate, the infiltration crates have been oversized to double what they need to be, in effect after the 1 in 100 year storm they are already half-drained/at half capacity. This is the same approach to the strategy as when it was consented which was agreed on the above basis. For this design, there has been no change in approach.

The other point regarding the factors of safety has also been previously explained by James, in that the factors of safety are appropriate for the number of soakage tests undertaken.

Hopefully this clarifies everything and I trust the attached files and the below comments in my previous email are adequate.

As a direct response to the list you queried on:

Thank you for sending over the revised information. I have the following comments:

1. No on site winter groundwater monitoring results have been provided. These must be provided. Email from David clarifies that the council accepted the previous results *Noted, please note I only previously accepted these results because Tom had put in writing that he had. In future this level of monitoring and infiltration testing will not be accepted.*
2. Infiltration testing has not been completed in the winter or at the depth of proposed structures. Again this is a standard requirement of this condition and must be complied with. Email from David clarifies that the council accepted the previous results. *Noted, please note I only previously accepted these results because Tom had put in writing that he had. In future this level of monitoring and infiltration testing will not be accepted.*
3. Three sets of calculations have been provided, yet many infiltrating structures are proposed. Calculations must be submitted of the entire proposed drainage scheme. We provided a 'worst case' gravel infiltration soakaway calculation in the report but have now attached all of the microdrianage outputs for the scheme. *Please always supply all calculations.*
4. A catchment area plan should be provided. A catchment area plan is not included in the checklist, as this is a detailed design the pipe layout shows where all the surface water is being channelled to, a catchment plan would provide no additional information on top of this. *I do not understand how this is difficult to produce and provide as you should have been using it in design anyway. It is common place for us to ask for a catchment area plan on larger developments, they expedite our review. Please provide this.*
5. One of the sets of calculations provided does not seem to equate to anything proposed on paper. I.e. the modelled dimensions are not reflected on plan. All the calcs had a reference against the design but hopefully the provision of all of the gravel trench soakaways clears this up.
   Please ensure that all calculation dimensions match up with those shown on plan. There are inconsistencies in:
   Northern soakaway
   Trench soakaway 1
   Trench soakaway 3
   Trench soakaway 4

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Trench soakaway 5
Trench soakaway 6
Trench soakaway 8
Trench soakaway 9
Trench soakaway 10 -Please also provide 1 in 10 year plus cc event half drain time results.
Trench soakaway 11
Please also ensure that modelled cover and invert levels match with those shown on plan.

6. The ring soakaways are proposed to be located at 2m depth, yet rely on infiltration testing completed at 4.2m depth. The strata at these depths differs significantly. Again I stress the importance of completing winter infiltration testing at the proposed depth and location of infiltrating structures. We have provided a calculation for the specification of a ring soakaways at 3.6m depth with a 2.4m diameter, which is in the appropriate strata. The latter part of this point relates to the responses to points 1 and 2.
7. Having a half drain time in excess of 7 days is not acceptable. It must be demonstrated that proposed infiltrating structures half drain in less than 24 hours for the 10 year plus climate change event. If this cannot be demonstrated the design is unacceptable. The half drain time showed is for the 1 in 100 year storm. The strategy and specification for the northern crates has not changed from the consented scheme. We have previously provided commentary on this and mentioned that during a 1 in 100 year storm, the infiltration crates fill up to less than 50% volume and therefore are in effect half-drained. This was accepted for the consented scheme and the approach has not changed. *Please provide half drain times for the 1 in 10 year plus climate change event. If you cannot get this half drain time to meet our requirements please look at providing a high level overflow to an area where better infiltration rates have been observed. My comments are fully in accordance with building regs, CIRIA, and WSCC policy for surface water drainage.*
8. Infiltration is proposed at locations where infiltration rates have been found to be less than x10^-6ms^-1. This is not advised. The sizing proposed is commensurate with the nearest infiltration rate that we have for the scheme and are therefore appropriately sized. Again, this strategy was accepted previously and has not changed. *See point 7 response above.*
9. Factors of safety used in design should be in accordance with the values set out in our surface water drainage checklist. This is applicable to any structure where infiltration is proposed/modelled through the base. We've previously advised that the factors of safety are suitable for the number of tests, the same factors of safety have been approved previously. *Please use the values set out in the checklist, you have not completed infiltration testing in the winter or at the depth of proposed structures, you are utilising infiltration through the base of structures, my requirements are therefore completely in line with CIRIA and I will not accept lower factors of safety.*

Kind Regards

Adam Shephard
Principal Engineer
BEng MSc CEng MICE

paulbasham associates

Fareham Office

[redacted]

p Lancaster Court, 8 Barnes Wallis Road, Fareham, Hampshire, PO15 5TU

[redacted]

Fareham | Oxford | Bristol | Cambridge

From: David Innes [redacted]
Sent: 08 April 2019 14:52
To: Laura.Gibbons[redacted] Andrew Wood [redacted]

ARUN DISTRICT COUNCIL LU/24/19/DOC

Cc: Christian O'Brien <[redacted]>; Adam Shephard <[redacted]>
Subject: Fwd: Windroos, Littlehampton

Hi Laura,

Further to your comments received requesting winter monitoring I have included an email from yourself that confirmed that no further winter monitoring and percolation tests would be required.

We had sought and received this confirmation last September from yourself prior to Dandara purchasing the site as it would be a critical issue given the need to discharge all the pre-commencement conditions and make a legal start on site prior to the end of April.

A meeting is taking place today to address your other points so either PBA or myself will be in touch.

Regards

David Innes
[redacted]
Blueprint Planning & Development Ltd
[redacted]

Begin forwarded message:

From: Laura Gibbons [redacted]
Date: 14 September 2018 at 10:32:19 BST
To: "[redacted]
Subject: RE: Windroos, Littlehampton LU/201/16/RES LU/229/10

Hi David,

Thanks for your email.

I can confirm that no further groundwater monitoring or percolation tests are required based on the information previously provided. A DOC application with the full surface water drainage scheme will need to be provided, which I will review.

Kind Regards,

Laura Gibbons, MEng, GMICE
Engineer (Drainage & Coastal)

Laura Gibbons | Engineer (Drainage & Coastal), Engineering Services, Arun District Council | Location: First Floor, Arun Civic Centre, Maltravers Road, Littlehampton, BN17 5LF
[redacted]
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From: Paul Cann
Sent: 10 September 2018 15:37
To: 'David Innes'

Cc: Laura Gibbons
Subject: RE: Windroos, Littlehampton LU/201/16/RES LU/229/10

Hi David

Good to hear from you!

My colleague Laura will be dealing with the application so I have copied her in so she can respond to you directly.

Regards

Paul Cann
Senior Engineer (Drainage & Coastal)

Paul Cann | Senior Engineer (Drainage & Coastal), Engineering Services, Arun District Council | Location: First Floor, Arun Civic Centre, Maltravers Road, Littlehampton, BN17 5LF
[redacted]
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From: David Innes [redacted]
Sent: 07 September 2018 11:25
To: Paul Cann
Subject: Windroos, Littlehampton LU/201/16/RES LU/229/10

Hi Paul,

I hope you are well.

Further to the phone message I have been asked to check with you the position regarding the drainage requirements for the Windroos site. You will see in the email below that Tom Callaway confirmed that the level of groundwater monitoring was sufficient.

The infiltration design had been included in the reserved maters. I have also included Tom's email of 15 March 2017 confirming the solution and for a DOC application to be submitted. There is no further requirement for monitoring on the basis of earlier submissions as confirmed by Tom.

The application expires on 5 May and the developer is seeking to get the DOC application in the very near future.

Can you confirm that you agree with this position.

regards

David Innes

[redacted]
Blueprint Planning & Development Ltd
[redacted]

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--Forwarded Message Attachment--
Fro[redacted]
To:
CC:
Subject: RE: Windroos Nursery -LU/229/10
Date: Thu, 10 Apr 2014 09:50:47 +0000

Dear Joseph

Thank you for forwarding the information.

I am happy with the amount of groundwater monitoring done, and if the wording of the condition needs to be adjusted I have no problem with that. Results from February 2014 are likely to show high groundwater readings, which would be sufficient to design to.

Any further soakaway testing should take place where you would hope to be installing the soakaways and at the same level that you would hope to be installing them. This should be at a greater level than the highest recorded groundwater level from the monitoring. We do not wish to see surface water being discharged to the sewer.

The detailed drainage design is required in advance of clearing the condition, and should show that the system can contain the 1 in 100 year storm event plus 30%, with a half-drain time of up to 24 hours. The base of the soakaways should not be below the highest recorded groundwater level. Soakaways should be designed to the slowest infiltration rate of the nearest test pit where possible.

I would recommend submitting a design with the revised soakaway test results so that it can be initially checked before submitting a DOC application.

Regards

Tom Callaway

Thomas Callaway | Drainage & Coastal Engineer, Engineering Services, Arun District Council | Location: Second Floor, Arun Civic Centre, Maltravers Road, Littlehampton, BN17 5LF

[redacted]

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