

[REDACTED]

From: Neil Crowther
Sent: 04 February 2019 11:16
To: Planning.Responses
Subject: FW: Discharge of Condition 5 BE/18/17/PL - New Barn Lane, North Bersted

Application correspondence BE/117/18/DOC

Neil Crowther | Group Head of Planning, Arun District Council | Location: First Floor, Arun Civic Centre, Maltrovers Road,
Littlehampton, BN17 5LF

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From: Neil Crowther
Sent: 04 February 2019 09:55

[REDACTED]

Cc: Karl Roberts; Claire Potts
Subject: Fwd: Discharge of Condition 5 BE/18/17/PL - New Barn Lane, North Bersted

Robin/Philip,

On the basis that you have failed to submit the correct material in respect of the correct layout to discharge this condition, you will not be carrying out any works on the site this week until the correct details are submitted and time given to consider these?

I do not want to go to the time and expense of serving an injunction if these details can be submitted shortly and you continue to refrain from carrying out works until they are submitted and considered.

Regards, Neil

Sent from my iPad

Begin forwarded message:

From: Laura Gibbons <Laura.Gibbons@arun.gov.uk>
Date: 4 February 2019 at 09:49:01 GMT
To: 'Joao Valadas' [REDACTED]

[REDACTED]

<Neil.Crowther@arun.gov.uk>

Subject: RE: Discharge of Condition 5 BE/18/17/PL - New Barn Lane, North Bersted

Hi Joao,

I have the following comments on the supplied details:

1. The catchment area plans supplied are not of the approved layout. Please supply the correct catchment area plans. Without this I cannot determine if the design is adequate.
2. Maintenance manual still doesn't acknowledge the fact that Linden Homes **has** (not may!) riparian responsibility over the southern ditch. I raised this back in November.
3. Do you have confirmation from southern water that there is adequate capacity?
4. The cross section detail of the pond outfall needs to show the headwall will be graded into the bank. Please update the cross section to ensure turf layer etc. follows the dashed line and meets the top of the headwall.
5. Please supply uplift calculations for the attenuation tanks with submission.
6. Please can you provide an update regarding the ordinary watercourse land drainage consent. Without this you cannot implement the scheme and therefore will not be able to comply with the condition.

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,
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From: Joao Valadas [REDACTED]

Sent: 29 January 2019 17:13

To: Laura Gibbons

Cc: David Easton; Karl Gebhart; 'Robin Pearmain (Linden Homes)'; Philip Chapman (Linden Homes); Yuved Bheenick (Linden Homes); Kieran Walker (Linden Homes); Stephen Clark (Linden Homes); Tom Grayshaw; Jen Samuelson; Steven Ott (Linden Homes); Tim Collins (Linden Homes)

Subject: RE: Discharge of Condition 5 BE/18/17/PL - New Barn Lane, North Bersted

Hi Laura,

In reference to your email dated 25.01.19, we have calculated the uplift forces as requested.

In addition, a supporting statement, produced by one of our structural engineering colleagues is enclosed. We have also updated drawing LHS232-1011 to tally with the amendments made to the calculations.

We trust this now concludes matters and you can confirm drainage acceptance to David Easton (Planning Officer).

For ease and as requested by David Eastern, the finalised plans + docs are listed below and can be found using the following dropbox link -

https://www.dropbox.com/sh/du211dhqvyqk3tg/AADaKmDeO_MmIFoM_9wKhfpa?dl=0

Condition 5 (surface water drainage)

5529:PO1 Rev L - Drainage Strategy Layout (Sheet 1)
5529:PO2 Rev M - Drainage Strategy Layout (Sheet 2)
LHS232 - 1011 Rev L - Attenuation Basin Sections + Layout
LHS232 – 1013 Rev B – Root Barrier Protection Detail
LHS232 – 1021 Rev C – Sewer Construction Details
LHS232 – 1022 Rev E – Private Drainage Construction Details (Sheet 1)
LHS232 – 1025 Rev C – Section through Attenuation Tanks
5529 – CA1– Drainage Network Catchment Areas
5529 – CA1 Rev B – Drainage Network Catchment Areas + 10%
SUDS Management & Maintenance Plan Rev F
Surface Water Calculations 250119 (Micro Drainage)
19.0119.RF Attenuation Basin Supporting Statement
S104 APPROVAL SOUTHERN WATER Letter dated 02.11.18
S106 APPROVAL SOUTHERN WATER Letter dated 23.07.18
LHS232-10500 Rev D - Agreement Plan S104

Condition 6 (SUDs system)

SUDS Management & Maintenance Plan Rev F

Condition 14 (Foul Drainage)

5529:PO1 Rev L - Drainage Strategy Layout (Sheet 1)
5529:PO2 Rev M - Drainage Strategy Layout (Sheet 2)
S104 APPROVAL SOUTHERN WATER Letter dated 02.11.18
S106 APPROVAL SOUTHERN WATER Letter dated 23.07.18
LHS232-10500 Rev D - Agreement Plan S104

Condition 23 (Vehicle Access)

LH5232-2007 Rev C -Vehicle Tracking
LHS232-2002 Rev H - General Arrangement
LHS232-2004 Rev F - Surfacing Layout
LHS232-10506 Rev A - Sewer Diversion Plan S185
S185 APPROVAL SOUTHERN WATER Letter dated 02.11.18

Kind Regards,

Joao Valadas
MSc (Hons), GMICE
Graduate Civil Engineer



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From: Laura Gibbons [<mailto:Laura.Gibbons@arun.gov.uk>]

Sent: 25 January 2019 16:02

To: Joao Valadas [REDACTED] 'Robin Pearmain (Linden Homes)'

Subject: RE: Discharge of Condition 5 BE/18/17/PL - New Barn Lane, North Bersted

Joao,

I have reviewed the maintenance manual and this is okay.

However, the depth of groundwater displaced in your calculations is incorrect. You are displacing 1.7m of groundwater, not 1.4m. This means that you do not have sufficient resisting forces. Please revise.

I have not had time to review the impermeable areas.

Therefore, I cannot recommend the discharge of conditions at this time.

Please note that I cannot keep putting your site to the top of the pile, it is unfair to other applicants.

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

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From: Joao Valadas [REDACTED]

Sent: 25 January 2019 14:55

To: Laura Gibbons; 'Robin Pearmain (Linden Homes)'

Cc: Karl Gebhart; Philip Chapman (Linden Homes); Yuved Bheenick (Linden Homes); Kieran Walker (Linden Homes); Stephen Clark (Linden Homes); Tom Grayshaw; Jen Samuelson; Steven Ott (Linden Homes)

Homes); Tim Collins (Linden Homes); David Easton

Subject: RE: Discharge of Condition 5 BE/18/17/PL - New Barn Lane, North Bersted

Hi Laura,

Thank you for reviewing the information that was submitted yesterday. My response is below in green and the respective SUDS manual, uplift and MicroDrainage calculations are enclosed.

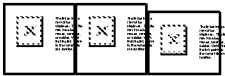
As you can see the MicroDrainage calculations issued yesterday are in accordance with the catchment area plan however, we are happy to provide this clarification for you. With regards to the SUDS management and maintenance plan we have added a further subclause 2.5 to clause 2 to remove any doubt regarding future management and maintenance of the sewer networks, SUDS drainage and carriageways.

Kind Regards,

Joao Valadas
MSc (Hons), GMICE
Graduate Civil Engineer



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From: Laura Gibbons [<mailto:Laura.Gibbons@arun.gov.uk>]

Sent: 25 January 2019 12:50

To: Joao Valadas [REDACTED] 'Robin Pearmain (Linden Homes)'

Subject: RE: Discharge of Condition 5 BE/18/17/PL - New Barn Lane, North Bersted

Hi Joao,

I have now had an opportunity to review the supplied information. Couple of comments in bold and red below.

Please can you send over the revised flotation calculations as requested?

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, Maltrovers Road, Littlehampton, BN17 5LF
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From: Joao Valadas [REDACTED]
Sent: 24 January 2019 14:34
To: Laura Gibbons; 'Robin Pearmain (Linden Homes)'
Cc: Karl Gebhart; Philip Chapman (Linden Homes); Yuved Bheenick (Linden Homes); Kieran Walker (Linden Homes); Stephen Clark (Linden Homes); Tom Grayshaw; Jen Samuelson; Steven Ott (Linden Homes); Tim Collins (Linden Homes); David Easton
Subject: RE: Discharge of Condition 5 BE/18/17/PL - New Barn Lane, North Bersted

Hi Laura,

Our response to your comments is below in green. The revised drawings, SUDS manual and calcs are enclosed.

Kind Regards,

Joao Valadas
MSc (Hons), GMICE
Graduate Civil Engineer



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From: Laura Gibbons [<mailto:Laura.Gibbons@arun.gov.uk>]

Sent: 23 January 2019 14:14

To: Joao Valadas [REDACTED]

'Robin Pearmain (Linden Homes)'

Subject: RE: Discharge of Condition 5 BE/18/17/PL - New Barn Lane, North Bersted

Hi Joao,

Comments in *italics*.

I note that the revised pond detail means that you are now displacing extra groundwater. It would be good to get some revised calculations submitted just to show that you have considered this and that design is okay.

Thanks,

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

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From: Joao Valadas [REDACTED]

Sent: 22 January 2019 11:06

To: Laura Gibbons; 'Robin Pearmain (Linden Homes)'

Cc: Karl Gebhart; Philip Chapman (Linden Homes); Yuved Bheenick (Linden Homes); Kieran Walker (Linden Homes); Stephen Clark (Linden Homes); Tom Grayshaw; Jen Samuelson; Steven Ott (Linden Homes); Tim Collins (Linden Homes); David Easton

Subject: RE: Discharge of Condition 5 BE/18/17/PL - New Barn Lane, North Bersted

Good morning Laura,

Thank you for your comments, please see below our responses in green. The revised drawings, SUDS management and maintenance plan and calculations are enclosed.

We have addressed what we believe to be all of your final comments and look forward to receiving confirmation of discharge of condition 5 by return.

Kind Regards,

Joao Valadas
MSc (Hons), GMICE
Graduate Civil Engineer



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From: Laura Gibbons [<mailto:Laura.Gibbons@arun.gov.uk>]

Sent: 17 January 2019 12:18

To: Joao Valadas [REDACTED] 'Robin Pearmain (Linden Homes)'

Subject: RE: Discharge of Condition 5 BE/18/17/PL - New Barn Lane, North Bersted

Hi Joao,

Thanks for providing the revised details and responses to my comments. I have responded to your comments in red below.

Couple more points I have picked up on:

- a) ~~Recent flooding of the access way has clearly evidenced a flow exceedance path is present which allows water to exit your site. Can a speed bump or similar be provided in the access way? This would mean that if blockage was to occur within your system water would first pond on your site and allow the blockage to hopefully be resolved before water spills out onto neighbouring land.~~

MJA Response - ~~Noted, 1.8m x 0.075m high road hump added to access way (Road 1); Okay.~~

- b) As stated within Condition 6 your maintenance manual needs to state how maintenance will be funded. Please add this detail to the manual.

MJA Response - Sub clause 2.4 added to clause 2.0 as requested; *Can clarification be provided as to whether ADC are adopting any open space. It is not my understanding that ADC will be taking on any open space here. There will also be areas which are definitely not going to be taken on by ADC.*

Therefore, the maintenance manual needs to clarify who will be maintaining these areas and if a management company is going to be appointed.

MJA Response -- Please refer to clause 2.4 of SUDS manual (revision E). There are still no details about the maintenance outside of the POS areas. Please provide this.

MJA Response -- Noted, subclause 2.5 added to clause 2.

~~c) As I stated back on the 6th December it is not acceptable to have the inlet into the pond below the turf layer. Please revise this.~~

~~MJA Response -- Noted. Swale sections revised, concrete ditched channel added to details. Please revise the detail to show that the ditched channel will be embedded in concrete.~~

~~MJA Response -- Detail revised as instructed, refer to drawing LMS232-1011 revision K. Okay.~~

~~d) Please model the pond invert level as the turf level.~~

~~MJA Response -- It was not altered from previous revisions, refer to sections of drawing LMS232-1011 revision J, the depth area input for the pond has not been changed to account for the change in cross section of the pond. Please update this to ensure consistency between MicroDrainage and plans. For example you do not have 376m² at 3.547m AOD.~~

~~MJA Response -- Noted, MicroDrainage calculations revised. Okay.~~

~~e) Layouts need to be updated at the pond to show formation and finish level. Currently the pond is undulating significantly, I would like to see this revised to be smoother.~~

~~MJA Response -- Noted, Pond and sections revised. Okay.~~

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

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From: Joao Valadas

Sent: 16 January 2019 17:22

To: Laura Gibbons; 'Robin Pearmain (Linden Homes)'

Cc: Karl Gebhart; Philip Chapman (Linden Homes); Yuved Bheenick (Linden Homes); Kieran Walker (Linden Homes); Stephen Clark (Linden Homes); Tom Grayshaw; Jen Samuelson; Steven Ott (Linden Homes); Tim Collins (Linden Homes); David Easton

Subject: RE: Discharge of Condition 5 BE/18/17/PL - New Barn Lane, North Bersted

Hi Laura,

Thank you for your comments, our response is below in green. The revised drawings, calculations and documents are enclosed.

Comments Regarding Route Protection Proposals

~~1. The root-protection barrier will need to extend to ground surface.~~

~~MJA Response -- Noted, root-protection barrier extended to ground surface. Okay.~~

2.75mm of binding concrete is insufficient. Please provide 150mm of ST4 concrete.
MJA Response—Noted, detail revised as instructed; Okay

3. Please detail the requirements for inspection and replacement of the root protection barrier within the maintenance manual.
MJA Response—Noted, Clauses 3.14 and 3.32 of SUDS Management and Maintenance plan revised; Okay.

4.150mm concrete bed and surround will need to be provided at all pipes joints within potential root zones.
MJA Response—Notes added to engineering drawings; Can you please send these engineering drawings through.
MJA Response—Concrete surround detail is located in Drawing LMS232-1021 (enclosed); *This concrete bed and surround detail is for standard bedding, it does not state that the flexible joints are not to be provided at locations in close proximity to trees. Can you please add a specific detail and note to a surface water sewer construction detail sheet.*
MJA Response—Noted, concrete surround detail added to Drawing LMS232-1022 revision E; Okay.

5. How are you protecting the pond liner from root ingress?
MJA Response—A root barrier will be implemented as shown on drawing 5529-P01 and drawing LMS232-1011; Okay.

Comments Regarding Surface Water Drainage Design

1. Tank S16 is 40m² smaller on plan than in the calculations, either model it smaller or increase the size on plan so that they are consistent.
MJA Response—No discrepancies were found between MicroDrainage model and revised engineering drawings, please refer to revision K of drawings 5529-01 and 5529-02; Okay

2. How have you modelled the inflows from the couple of properties into the upstream of each "offline tank"? It appears that you haven't modelled this and have just gone with a simplified approach and haven't modelled the offline tanks as offline. Can you model it with a dummy node and input to more accurately replicate the proposed design?
MJA Response—Please see calculations. These tanks have now been modelled offline with the associated areas input at these nodes as instructed. Okay.

3. ~~There are large discrepancies between the catchment areas modelled previously and those currently used. Can you please explain these differences given that the layout hasn't changed?~~
MJA Response—When we first model a network in micro drainage we use conservative areas. We first modelled these areas with a factor of safety to account for future increases in impermeable areas such as residents tarmacking over front gardens, rear garden works and extensions. Since you are not allowing any flooding onsite this safety factor was removed to achieve a more accurate model in its proposed state. We require a 10% allowance for future increase in impermeable areas. This is in line with WSCC policy. I am being lenient in not insisting on a Cv value of 1 so use of the 10% urban creep is not negotiable. Please also provide an updated catchment area plan with the next submission.
MJA Response -- Please see updated model, drainage layout and catchment plan with +10% areas. There is no flooding. *The revised time area diagrams and their associated contributing areas are not 10% greater than the previous submission. Furthermore, the areas on plan match those in the MicroDrainage printout, i.e. don't seem to include 10% urban creep.*
MJA Response -- Noted, plan areas and MicroDrainage calculations revised; The area going into SOUT1 is 4835m² on plan, so $1.1 \times 4925 = 5417.5$, yet you have 4890m² modelled. Even if I discount the area going into the offline tank I do not get 4890m². Please explain. I also have inconsistencies with the other network.
A good example is S2.000 is modelled as 890m², on plan is 850m² therefore if applying the creep should be modelled as 935m².

MJA Response -- The plan that you are referring to already includes the 10% urban creep, I have enclosed the actual and the +10% urban creep catchment area layouts for your reference. 52.000 shows 890m2 on plan not 850m2.

~~4. Can you provide any updates regarding intentions for investigation of the MJA Response--This sentence is unfinished. Please confirm what is required; Sorry about this, this was meant to state: potential culverted connection between the two ditches at the south-eastern corner of your site, i.e. near to the entrance to the footpath off of New Barn Lane.~~

~~MJA Response--Further investigation to be undertaken by Linden Homes once stop notice has been lifted, as agreed at our last meeting. Okay.~~

Kind Regards,

Joao Valadas
MSc (Hons), GMICE
Graduate Civil Engineer



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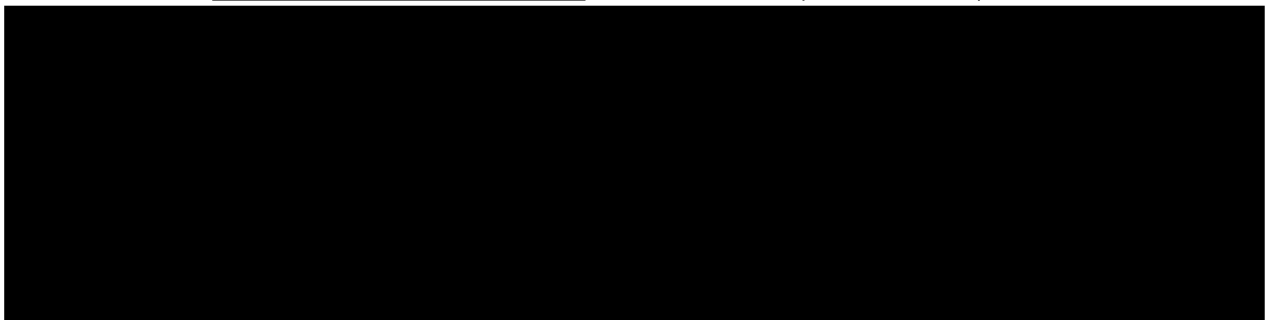


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From: Laura Gibbons [<mailto:Laura.Gibbons@arun.gov.uk>]

Sent: 10 January 2019 14:47

To: Joao Valadas [REDACTED] 'Robin Pearmain (Linden Homes)'



Subject: RE: Discharge of Condition 5 BE/18/17/PL - New Barn Lane, North Bersted

Joao and Robin,

Thank you for the supply of updated plans. I have now received comments from our tree officer and I have completed my review of the drainage proposals.

[Comments Regarding Route Protection Proposals](#)

1. The root protection barrier will need to extend to ground surface.
2. 75mm of binding concrete is insufficient. Please provide 150mm of ST4 concrete.
3. Please detail the requirements for inspection and replacement of the root protection barrier within the maintenance manual.
4. 150mm concrete bed and surround will need to be provided at all pipes joints within potential root zones.
5. How are you protecting the pond liner from root ingress?

Comments Regarding Surface Water Drainage Design

1. Tank S16 is 40m² smaller on plan than in the calculations, either model it smaller or increase the size on plan so that they are consistent.
2. How have you modelled the inflows from the couple of properties into the upstream of each "offline tank"? It appears that you haven't modelled this and have just gone with a simplified approach and haven't modelled the offline tanks as offline. Can you model it with a dummy node and input to more accurately replicate the proposed design?
3. There are large discrepancies between the catchment areas modelled previously and those currently used. Can you please explain these differences given that the layout hasn't changed?
4. Can you provide any updates regarding intentions for investigation of the

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

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From: Joao Valadas [REDACTED]

Sent: 07 January 2019 10:18

To: Laura Gibbons; 'Robin Pearmain (Linden Homes)'; David Easton

Cc: Karl Gebhart; Philip Chapman (Linden Homes); Yuved Bheenick (Linden Homes); Kieran Walker (Linden Homes); Stephen Clark (Linden Homes); Tom Grayshaw; Jen Samuelson; Steven Ott (Linden Homes); Tim Collins (Linden Homes)

Subject: RE: Discharge of Condition 5 BE/18/17/PL - New Barn Lane, North Bersted

Good morning Laura,

The updated MicroDrainage calculations are enclosed.

Kind Regards,

Joao Valadas
MSc (Hons), GMICE
Graduate Civil Engineer



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From: Laura Gibbons [<mailto:Laura.Gibbons@arun.gov.uk>]

Sent: 03 January 2019 10:21

To: 'Robin Pearmain (Linden Homes)' [REDACTED]; David Easton

[<David.Easton@arun.gov.uk>](mailto:David.Easton@arun.gov.uk)

Subject: RE: Discharge of Condition 5 BE/18/17/PL - New Barn Lane, North Bersted

Hi Robin,

I have spoken to our tree officer who has stated that he will have a response by the middle of next week. As stated previously I will review from a drainage perspective following his comments. Looking at my calendar I should be able to review the drainage side of things within a day or two of his response. Therefore, at the latest we should have a full response for you by the end of next week. We will of course, endeavour to respond to you sooner.

As discussed on the phone I will need to see updated calculations from MJA with the tanks modelled to reflect their revised "offline" position. If this can please be provided as soon as possible to facilitate my review.

I have also been dealing with another site recently where stone has had to be utilised in the base of their attenuation ponds, they were advised that their proposals to seed on top of the stone weren't suitable. It would be good to get confirmation, from a suitably qualified person, if the proposals for the grass on top of the stone at your site are suitable or not.

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
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F

From: Robin Pearmain (Linden Homes) [REDACTED]

Sent: 02 January 2019 08:56

To: David Easton; Laura Gibbons

Cc: 'Karl Gebhart'; Joao Valadas; Philip Chapman (Linden Homes); Yuved Bheenick (Linden Homes); Kieran Walker (Linden Homes); Stephen Clark (Linden Homes); Tom Grayshaw; Jen Samuelson; Steven Ott (Linden Homes); Tim Collins (Linden Homes)

Subject: RE: Discharge of Condition 5 BE/18/17/PL - New Barn Lane, North Bersted

Importance: High

Hi David + Laura,

Happy New Year to you.

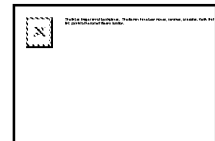
Just to let you know Stephen Clark (Technical Manager) is on leave this week + next week, so please could you come back to all on this email thread after you have consulted / heard back from the Tree Officer.

Keen to resolve this ASAP and get the remaining conditions discharged.

Kind Regards

Robin Pearmain Senior Planning
Manager BA(Hons) MATCP MRTPI

Linden Homes South
1A Guildford Business Park
Guildford
Surrey
GU2 8XG
www.lindenhomes.co.uk



From: Laura Gibbons [<mailto:Laura.Gibbons@arun.gov.uk>]

Sent: 20 December 2018 10:10

To: 'Karl Gebhart' [REDACTED]

Subject: RE: Discharge of Condition 5 BE/18/17/PL - New Barn Lane, North Bersted

Karl,

Thank you for sending through that information. I have asked our tree officer to review the submitted information prior to my review. We will provide our comments in due course.

Thanks,

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



From: Karl Gebhart [REDACTED]
Sent: 20 December 2018 08:17
To: Laura Gibbons; Paul Cann; David Easton
Cc: Joao Valadas; [REDACTED] Kieran Walker (Linden Homes); Stephen Clark (Linden Homes); Robin Pearmain (Linden Homes); Tom Grayshaw; Jen Samuelson
Subject: Discharge of Condition 5 BE/18/17/PL - New Barn Lane, North Bersted

Dear Laura,

Thank you taking the time to meet me and my colleagues last Friday.

As agreed at the meeting we have reviewed the design of the attenuation tanks taking into consideration the professional advice received from our Arboricultural colleagues at ACD. A copy of the advice from Tom Grayshaw (Senior Arboriculturist & Associate Director) is attached for your records and future reference. You will note the advice makes reference to BS5837 in regards to the locations of services (drainage) and existing tree RPA's. ACD confirm the drainage strategy proposed by MJA entirely accords with the guidance contained within BS5837 and ACD's Arboricultural Method Statement upon which the clearance of planning condition 10 was based.

Turning to the issue of the proposed trees and the proposed drainage strategy ACD note 'that nowhere within BS5837 is there any requirement, guidance or formula to calculate future RPA's as future stem diameters (by which the RPA is calculated) obviously cannot be known'. That being said we are mindful of your authorities concern regarding future tree/root growth and have therefore taken the decision to implement the following:

- A Reroot barrier has been added to the sides of any attenuation tank that could potentially come into contact with future roots. The barrier to extend from 150mm below finished ground level to 1m below formation level of the attenuation tank.
- A 1mm thick impermeable heat sealed membrane around all attenuation tanks.
- A 75mm thick concrete blinding layer below the base (below sand layer) to all tanks

ACD have been asked for their professional opinion of these measures and have confirmed 'This is considered entirely adequate for the purpose of preventing root growth from existing or proposed trees into the tanks, and it is considered highly unlikely for future root ingress to interfere with the function of the attenuation system'.

We therefore consider, based upon the professional advice we have received, that the proposed design and location of the tanks is entirely appropriate and will not be compromised by either existing or future trees. We therefore look forward to receiving your support and approval to the proposed drainage strategy and details.

Kind Regards

Karl Gebhart
Associate Director



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