

From: Andrew Wood <Andrew.Wood@arun.gov.uk>
Sent: 23 October 2020 14:01
To: Planning.Responses <Planning.Responses@arun.gov.uk>
Cc: Juan Baeza <Juan.Baeza@arun.gov.uk>
Subject: FW: Elm Lodge, Tamarisk Way, Ferring BN12 5ER - Land Drainage Strategy

Consultee response pls upload

Andrew Wood MRTPI
Senior Planning Officer, Planning Department

T: 01903 737768
E: andrew.wood@arun.gov.uk

Arun District Council, Civic Centre, Maltravers Rd, Littlehampton, West Sussex, BN17 5LF
www.arun.gov.uk

Sign up to our newsletter [here](#)



From: Paul Cann <Paul.Cann@arun.gov.uk>
Sent: 23 October 2020 10:48
To: ryan harborne [REDACTED]
Subject: RE: Elm Lodge, Tamarisk Way, Ferring BN12 5ER - Land Drainage Strategy

Hi Ryan

I can now confirm that your proposals are acceptable. I also enclose the Land Drainage Consent approval.

Malcolm – please advise once the land drainage consent works commence.

Andrew – Based upon the enclosed documents/plans and the contents of this email chain, I can confirm that condition no. 3 (FG/95/20/DOC) can be discharged.

Regards

Paul Cann
Principal Engineer (Drainage)

Paul Cann | Principal Engineer (Drainage), Engineering Services, Arun District Council | Location: First Floor, Arun Civic Centre,
Maltravers Road, Littlehampton, BN17 5LF

Internal: 37819 | External: +44 (0) 1903 737819 | Fax: +44 (0) 1903 716019 | E-mail: Paul.Cann@arun.gov.uk

Arun is Working in Partnership with Chichester District Council

Visit Arun's web site at <http://www.arun.gov.uk/> and www.chichester.gov.uk



Save the environment - think before you print.

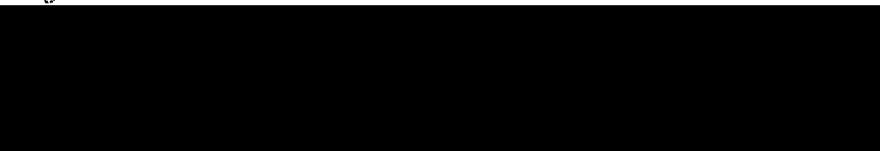
From: ryan harborne [REDACTED]
Sent: 21 October 2020 17:17
To: Paul Cann <Paul.Cann@arun.gov.uk>
Cc: Malcolm Jenkins [REDACTED]
Subject: RE: Elm Lodge, Tamarisk Way, Ferring BN12 5ER - Land Drainage Strategy

Good evening Paul,

Further to your comments below, please find attached the updated drainage information for approval.

I trust this is of assistance, however, should you wish to discuss a matter further please do not hesitate to contact me

Regards



BPS

Borne Project Services Ltd

11 Richardson Road, Royal Tunbridge Wells, Kent, TN4 9PB

Registered in England and Wales no. 12872663

This e-mail and any attachments are intended solely for the use of the individual or entity to which it is addressed and may contain confidential or privileged information. If an addressing or transmission error has misdirected this e-mail, please notify the author by replying to this e-mail. If you are not the intended recipient you must not use, disclose, copy, print, or rely on this e-mail

Hi Ryan

Comments;

Land drainage consent

1. Fees now received. Ok
2. I await your revised proposals for linking Sea Lane ditch into the pond, following our discussion. The principle is fine except that we need to increase the 160mm min headroom to at least 225mm and the supports must be omitted from the channel to provide a clear span arrangement. This may mean rethinking finished path levels and perhaps introducing lintels. *Existing Boundary Ditch Outlet Section updated.*
3. Redirect the 300mm culvert extension to flow westwards. Ok
4. Specify class Z bedding on the culvert long section. Ok
5. Pipe to protrude 50mm beyond timber revetment. Ok
6. Concrete fill behind timber revetment – fully dimension and add formation level. Ok

General

1. All connections made direct to pipelines to be connected using oblique 45 degree junctions (add note). Ok
2. Provide hydraulic calculations to support the suds proposals. Ok

Permeable paving

1. Remove filter arrangement from sump manhole unless an overflow is incorporated, to reduce impact of potential blockage. Ok but specify overflow level. *Overflow level added to plans.*
2. Make clear on the construction detail that the geotextile extends around the sides of the granular sub base too. Ok
3. Specify proposed finished levels. Assumed level to be 6.00m ie. Flat. *Note added to plans.*
4. Add base level of permeable paving to plan. Ok
5. Specify invert levels of link pipe between permeable pavement sections. Ok
6. Specify invert level of outlet pipe. Ok
7. 'BP' alongside some pipelines – add meaning to key. Ok

Soakaway B

8. Incoming pipe from SO1 – raise invert to as high as possible. You may need to adjust upstream invert levels to achieve this. Ok
9. Incoming pipe from diffuser – clearly indicate invert level, keeping it as high as possible connection into soakaway. Ok
10. Add base level of soakaway to plan for contractors benefit (I appreciate it is specified in the box notes). Ok
11. Specify overflow outlet level (to be as high as possible). Adjust construction detail – specify end cap on horizontal pipe at bottom of choke pipe. *Note added to details.*
12. Overflow pipe to protrude 50mm beyond timber revetment. Ok
13. Construction detail to be specific to soakaway B ie. Label as soakaway B, dimension crates, no vent required, clearly label permeable geotextile wrapping/bedding on the actual detail – I appreciate that some of this information is in the notes but it's just a case of making it clear to the contractor. Dimension crates (length x width). Remove reference to vent pipe. *Details updated*
14. Dimension diffuser units on construction detail. Specify length x width x depth. *Detail updated*
15. Can the overflow pipe be accommodated in that corner of the pond ok bearing in mind the material at that end to facilitate wildlife entry/exit? Ok

Soakaway A & Attenuation Tank X

16. Add base levels of soakaway/attenuation tank to plan for contractors benefit (I appreciate they are specified in the box notes). Ok
17. Construction detail to be specific to soakaway A ie. Label as soakaway A, dimension crates, no vent required, clearly label permeable geotextile wrapping/bedding on the actual detail – I appreciate that some of this information is in the notes but it's just a case of making it clear to the contractor. Add root prevention

membrane to north side, ensuring it extends below base level and just below ground level. Dimension crates (length x width). Remove reference to vent pipe. Root protection membrane? *Details updated*

18. Construction detail to be specific to Attenuation tank B ie. Label as Attenuation tank B, dimension crates, clearly label permeable geotextile wrapping/bedding to the actual detail – I appreciate that some of this information is in the notes but it's just a case of making it clear to the contractor. Is the wrapping proposed sufficient to prevent root intrusion? Dimension crates (length x width) *Details updated*
19. Add drainage arrangements upstream of S05. Still required. *Added to plans.*
20. Remove filter arrangement from sump manholes unless an overflow is incorporated, to reduce impact of potential blockage. Ok but specify overflow level. *Details updated*
21. Indicate inlet levels (to be as high as possible). You may need to adjust upstream invert levels to achieve this. Ok
22. Specify overflow outlet level (to be as high as possible). Adjust construction detail – specify end cap on horizontal pipe at bottom of choke pipe. *Details updated*
23. Overflow pipe to protrude 50mm beyond timber revetment. Ok
24. Link pipe between soakaway and attenuation tank – provide additional link pipe just above the one shown, to improve durability. 2nd link pipe to be higher up than the other *Details updated*

Look forward to hearing from you further.

Regards

Paul Cann
Principal Engineer (Drainage)

Paul Cann | Principal Engineer (Drainage), Engineering Services, Arun District Council | Location: First Floor, Arun Civic Centre, Maltravers Road, Littlehampton, BN17 5LF

Internal: 37819 | External: +44 (0) 1903 737819 | Fax: +44 (0) 1903 716019 | E-mail: Paul.Cann@arun.gov.uk

Arun is Working in Partnership with Chichester District Council

Visit Arun's web site at <http://www.arun.gov.uk/> and www.chichester.gov.uk



Save the environment - think before you print.

From: ryan harborne [REDACTED]

Sent: 09 October 2020 09:38

To: Paul Cann <Paul.Cann@arun.gov.uk>
[REDACTED]

Subject: RE: Elm Lodge, Tamarisk Way, Ferring BN12 5ER - Land Drainage Strategy

Good morning Paul,

Please find attached the detailed drainage drawings for approval.

I trust this is of assistance, however, should you wish to discuss a matter further please do not hesitate to contact me

Regards
[REDACTED]



Borne Project Services Ltd
11 Richardson Road, Royal Tunbridge Wells, Kent, TN4 9PB
Registered in England and Wales no. 12872663

This e-mail and any attachments are intended solely for the use of the individual or entity to which it is addressed and may contain confidential or privileged information. If an addressing or transmission error has misdirected this e-mail, please notify the author by replying to this e-mail. If you are not the intended recipient you must not use, disclose, copy, print, or rely on this e-mail

From: Paul Cann <Paul.Cann@arun.gov.uk>
Sent: 07 October 2020 14:09
To: ryan harborne [REDACTED]
Cc: Malcolm Jenkin [REDACTED]
Subject: RE: Elm Lodge, Tamarisk Way, Ferring BN12 5ER - Land Drainage Strategy

Hi Ryan

I think the principle is fine. We now require fully detailed drawings ie. layout to include drainage around the buildings, all levels, etc + construction detail drawings of all elements.

Regards

Paul Cann
Principal Engineer (Drainage)

[Paul Cann](#) | Principal Engineer (Drainage), Engineering Services, [Arun District Council](#) | Location: First Floor, Arun Civic Centre, Maltravers Road, Littlehampton, BN17 5LF
Internal: 37819 | External: +44 (0) 1903 737819 | Fax: +44 (0) 1903 716019 | E-mail: Paul.Cann@arun.gov.uk
Arun is Working in Partnership with Chichester District Council
Visit Arun's web site at <http://www.arun.gov.uk/> and www.chichester.gov.uk



Save the environment - think before you print.

From: ryan harborne [REDACTED]
Sent: 07 October 2020 10:51
To: Paul Cann <Paul.Cann@arun.gov.uk>
Cc: Malcolm Jenkins [REDACTED]
Subject: RE: Elm Lodge, Tamarisk Way, Ferring BN12 5ER - Land Drainage Strategy

Morning Paul,

Further to your remarks please find attached the updated soakaway design for comment

The soakaways have been designed for 100 years + 40% climate change storm return period, to safely accommodated storm flows without flooding.

Proposed high level overflow pipes into pond have been included.

Overflow max discharge rate design check for 1000 year exceedance storm return period.

Rear Soakaway 'A'

0.2 l/s = max overflow discharge rate
2.1m³ = max overflow volume

Rear Soakaway 'B'

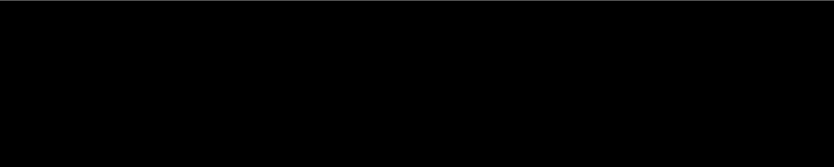
0.5 l/s = max overflow discharge rate
1.4m³ = max overflow volume

I trust the above is clear, however, should you wish to discuss the matter further please do not hesitate to contact me

Kind Regards

Ryan

Regards



BPS

Borne Project Services Ltd

11 Richardson Road, Royal Tunbridge Wells, Kent, TN4 9PB

Registered in England and Wales no. 12872663

This e-mail and any attachments are intended solely for the use of the individual or entity to which it is addressed and may contain confidential or privileged information. If an addressing or transmission error has misdirected this e-mail, please notify the author by replying to this e-mail. If you are not the intended recipient you must not use, disclose, copy, print, or rely on this e-mail

From: Paul Cann <Paul.Cann@arun.gov.uk>

Sent: 05 October 2020 15:29

To: ryan harborne

Cc: Malcolm Jenkin

Subject: RE: Elm Lodge, Tamarisk Way, Ferring BN12 5ER - Land Drainage Strategy

Hi Ryan

My observations;

1. I believe soakaway 'X' could be slightly larger? ie. extend slightly eastwards (keeping 5m from all structures).
2. Soakaway 'A' is not viable due to proximity of buildings.
3. As you know we only accept infiltration rates derived from BRE265 testing and also use the worst rate achieved at the structure location rather than an average from all tests.

My suggestion, as a compromise, bearing in my the other proposed improvements to the culvert/pond/ditch and the existing house roof drainage;

1. Employ a slightly larger soakaway 'X' if possible. Use the average percolation rate in this case ie. 6.86 x 10⁻⁶ m/s.
2. Also provide a sealed crate storage tank – size to be agreed.
3. Link soakaway and storage tank via pipework.
4. Overall design to consider 257m² impervious area.
5. All base levels to be at 5.05m.
6. Provide high level overflow to pond – advise of the calculated discharge rate so it can be discussed/agreed.
7. Silt traps to be provided on all inlets to soakaway/tank.
8. Keep incoming connections as high as possible.

Let me know what you think and perhaps sketch a proposal first for consideration.

Regards

Paul Cann
Principal Engineer (Drainage)

Paul Cann | Principal Engineer (Drainage), Engineering Services, Arun District Council | Location: First Floor, Arun Civic Centre, Maltravers Road, Littlehampton, BN17 5LF

Internal: 37819 | External: +44 (0) 1903 737819 | Fax: +44 (0) 1903 716019 | E-mail: Paul.Cann@arun.gov.uk

Arun is Working in Partnership with Chichester District Council

Visit Arun's web site at <http://www.arun.gov.uk/> and www.chichester.gov.uk



Save the environment - think before you print.

From: ryan harborne [REDACTED]
Sent: 02 October 2020 15:36
To: Paul Cann <Paul.Cann@arun.gov.uk>
Cc: Malcolm Jenkins [REDACTED]
Subject: RE: Elm Lodge, Tamarisk Way, Ferring BN12 5ER - Land Drainage Strategy

Good afternoon Paul,

Further to our site meeting please find attached a plan showing the soakaway requirements.

The soakaways have been designed for 100 years + 40% climate change storm return period, to safely accommodated storm flows without flooding.

Estimated storage required with:-

Existing Soakaway 'X'

No Infiltration (light blue) - $19.6\text{m}^3 = \text{min } 28.8\text{m}^2 \text{ area} \times 0.68\text{m deep cellular storage units.}$

Total Infiltration (dark blue) - $7.9\text{m}^3 = \text{min } 11.6\text{m}^2 \text{ area} \times 0.68\text{m deep cellular storage units.}$

New Soakaway 'A'

No Infiltration (light blue) - $23.5\text{m}^3 = \text{min } 34.6\text{m}^2 \text{ area} \times 0.68\text{m deep cellular storage units.}$

Total Infiltration (dark blue) - $8.7\text{m}^3 = \text{min } 12.8\text{m}^2 \text{ area} \times 0.68\text{m deep cellular storage units.}$

The filtration rate of 0.02473m/hr was used in the design, taken as the average from percolation testing on site.

Subject to the detailed design by specialist manufacturer:-

- Un-trafficked loading.
- 5.05 base level
- Approx 0.27m cover depth below ground.
- 26° assumed angle of internal friction.
- Ventilation requirements.
- Infiltration

The results highlight that soakaways designed for 100 yr + 40% storm events without an Infiltration coefficient are not attainable.

A BRE365 test was not undertaken, however, all other indications including the percolation testing establish soakaways work and have been used in this area for discharging stormwater. Therefore, a

practical solution could be to slightly increase the dark blue soakaway sizes and still provide a pipe overflow into the pond which has plenty of capacity above the 5.05 peak groundwater level.

I trust the above is clear, however, should you wish to discuss the matter further please do not hesitate to contact me

Kind Regards

Ryan

From: Malcolm Jenkins [REDACTED]
Sent: 22 September 2020 16:59
To: Paul Cann <Paul.Cann@arun.gov.uk>
Cc: ryan harborne [REDACTED]
Subject: Re: Elm Lodge, Tamarisk Way, Ferring BN12 5ER - Land Drainage Strategy

Hi Paul,

Further to your email below, I confirm that we will meet you next Tuesday 29 September at 10:00 on site.

Kind regards,

Malcolm

From: [Paul Cann](#)
Sent: Tuesday, September 22, 2020 3:39 PM
To: [Malcolm Jenkins](#)
Subject: RE: Elm Lodge, Tamarisk Way, Ferring BN12 5ER - Land Drainage Strategy

Hi Malcolm

Unfortunately I can't make Monday. The soonest I can do is Tue 29th say 10am. Wed 30th 10am is another option.

Regards

Paul Cann
Principal Engineer (Drainage)

[Paul Cann](#) | Principal Engineer (Drainage), Engineering Services, [Arun District Council](#) | Location: First Floor, Arun Civic Centre,
Maltravers Road, Littlehampton, BN17 5LF

Internal: 37819 | External: +44 (0) 1903 737819 | Fax: +44 (0) 1903 716019 | E-mail: Paul.Cann@arun.gov.uk

Arun is Working in Partnership with Chichester District Council

Visit Arun's web site at <http://www.arun.gov.uk/> and www.chichester.gov.uk



Save the environment - think before you print.

From: Malcolm Jenkins [REDACTED]
Sent: 22 September 2020 14:29
To: Paul Cann <Paul.Cann@arun.gov.uk>
Subject: Re: Elm Lodge, Tamarisk Way, Ferring BN12 5ER - Land Drainage Strategy

Hi Paul,

Further to your telephone conversation with the engineer Ryan Harborne, I confirm the message I left on your answer machine - if it would be possible for all three of us to meet on site next Monday 28 September at 11am.

Please could you confirm.

Kind regards,

Malcolm Jenkins

<http://www.arun.gov.uk>

DX 57406 Littlehampton

You can view Arun District Council's Privacy Policy from <https://www.arun.gov.uk/privacy-policy>

Important Notice This e-mail is intended exclusively for the addressee and may contain information that is confidential and/or privileged. If you are not the intended recipient (or authorised to receive it for the addressee), please notify the sender and delete the e-mail immediately; using, copying, or disclosing it to anyone else, is strictly prohibited and may be unlawful. Any views, opinions or options presented are solely those of the author and do not necessarily represent those of Arun District Council. The information in this e-mail may be subject to public disclosure under the Freedom of Information Act 2000, therefore we cannot guarantee that we will not provide the whole or part of this e-mail to a third party. The Council reserves the right to monitor e-mails in accordance with relevant legislation. Whilst outgoing e-mails are checked for viruses, we cannot guarantee this e-mail is virus-free or has not been intercepted or changed and we do not accept liability for any damage caused. Any reference to "e-mail" in this disclaimer includes any attachments.

<http://www.arun.gov.uk>

DX 57406 Littlehampton

You can view Arun District Council's Privacy Policy from <https://www.arun.gov.uk/privacy-policy>

Important Notice This e-mail is intended exclusively for the addressee and may contain information that is confidential and/or privileged. If you are not the intended recipient (or authorised to receive it for the addressee), please notify the sender and delete the e-mail immediately; using, copying, or disclosing it to anyone else, is strictly prohibited and may be unlawful. Any views, opinions or options presented are solely those of the author and do not necessarily represent those of Arun District Council. The information in this e-mail may be subject to public disclosure under the Freedom of Information Act 2000, therefore we cannot guarantee that we will not provide the whole or part of this e-mail to a third party. The Council reserves the right to monitor e-mails in accordance with relevant legislation. Whilst outgoing e-mails are checked for viruses, we cannot guarantee this e-mail is virus-free or has not been intercepted or changed and we do not accept liability for any damage caused. Any reference to "e-mail" in this disclaimer includes any attachments.

<http://www.arun.gov.uk>

DX 57406 Littlehampton

You can view Arun District Council's Privacy Policy from <https://www.arun.gov.uk/privacy-policy>

Important Notice This e-mail is intended exclusively for the addressee and may contain information that is confidential and/or privileged. If you are not the intended recipient (or authorised to receive it for the addressee), please notify the sender and delete the e-mail immediately; using, copying, or disclosing it to anyone else, is strictly prohibited and may be unlawful. Any views, opinions or options presented are solely those of the author and do not necessarily represent those of Arun District Council. The information in this e-mail may be subject to public disclosure under the Freedom of Information Act 2000, therefore we cannot guarantee that we will not provide the whole or part of this e-mail to a third party. The Council reserves the right to monitor e-mails in accordance with relevant legislation. Whilst outgoing e-mails are checked for viruses, we cannot guarantee this e-mail is virus-free or has not been intercepted or changed and we do not accept liability for any damage caused. Any reference to "e-mail" in this disclaimer includes any attachments.

<http://www.arun.gov.uk>

DX 57406 Littlehampton

You can view Arun District Council's Privacy Policy from <https://www.arun.gov.uk/privacy-policy>

Important Notice This e-mail is intended exclusively for the addressee and may contain information that is confidential and/or privileged. If you are not the intended recipient (or authorised to receive it for the addressee), please notify the sender and delete the e-mail immediately; using, copying, or

disclosing it to anyone else, is strictly prohibited and may be unlawful. Any views, opinions or options presented are solely those of the author and do not necessarily represent those of Arun District Council. The information in this e-mail may be subject to public disclosure under the Freedom of Information Act 2000, therefore we cannot guarantee that we will not provide the whole or part of this e-mail to a third party. The Council reserves the right to monitor e-mails in accordance with relevant legislation. Whilst outgoing e-mails are checked for viruses, we cannot guarantee this e-mail is virus-free or has not been intercepted or changed and we do not accept liability for any damage caused. Any reference to "e-mail" in this disclaimer includes any attachments.
