

[REDACTED]

From: Sarah Burrow <Sarah.Burrow@arun.gov.uk>

Sent: 31 July 2020 08:52

To: Andrew . [REDACTED]
[REDACTED]

Subject: FW: 40 little Paddocks

Good morning Andrew and Sharon,

My apologies in the delay in getting a response in to you on this, as the product was unfamiliar it was prudent to research it thoroughly. As you can see from the e-mail below Paul (Principle Drainage Engineer) has discussed the product with Wavin and is of the opinion that it is not suitable for this site. We all share concerns that if the orifice became blocked the unrestricted flow rate would continue to the foul with no indication of blockage on site. Given Southern Water's concerns about flooding downstream and the obviously dire consequences of foul sewer flooding, this would not be an appropriate solution. Whilst flooding on site would be undesirable, it would be a clear indicator that a blockage had occurred and could be easily rectified. In our opinion this is a better outcome than the overflow proposed.

With regards to the rest of the application the layout is clear. We would prefer to see an inspection chamber at the 90degree junction south of CC2 (or the angle slackened). I have not checked the calculations as these may change with an alternative flow control device.

Kind Regards

Sarah Burrow

Engineering Assistant, Engineers

Current Working Hours:

Monday-Wednesday, Friday: 8:00 – 17:00

Thursday 8:00 – 11:00

Some of this time is spent on site.

T: 01903 737815

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

Sent: 30 July 2020 11:03

To: Sarah Burrow <Sarah.Burrow@arun.gov.uk>

Cc: Laura Gibbons

Subject: RE: 40 little Paddocks

Hi

I have spoken to Wavin. See page 24-27 of attached. The orifice (whilst not shown) is located on outside of the 90 degree bend at the bottom of the overflow.

As discussed, we would not want an overflow arrangement of this type whereby we don't know if there is a blockage (especially as this is connecting to the foul and we/southern water would not want full flows bypassing the orifice).

There is also nothing to protect the orifice from blocking (Wavin acknowledged this), unless a filter arrangement is installed immediately upstream.

In short the product is not acceptable for use in this particular situation.

Paul Cann

Principal Drainage Engineer
Engineering Services

T: 01903 737819

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From: Sarah Burrow <Sarah.Burrow@arun.gov.uk>

Sent: 30 July 2020 09:52

To: Andrew . [REDACTED]
Cc: Paul Cann <Paul.Cann@arun.gov.uk>; Sharon Rowe [REDACTED]
Subject: RE: 40 little Paddocks

Hi Andrew,

Paul is looking into this further. I am hoping I can come back to you with a formal response tomorrow. Thank you for your patience.

Kind Regards

Sarah Burrow

Engineering Assistant, Engineers

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From: Andrew . [REDACTED]
Sent: 28 July 2020 18:24
To: Sarah Burrow <Sarah.Burrow@arun.gov.uk>
Cc: Paul Cann <Paul.Cann@arun.gov.uk>; Sharon Rowe [REDACTED]
Subject: RE: 40 little Paddocks

Sarah

Many thanks for your email. I appreciate that this system maybe new to you but as with all attenuation tanks the garastor works on a system whereby the flow control restricts the outflow from the network and allows the system to surcharge during peak rainfall events. This is the basic operation mode for any hydro-brake or orifice plate system. Therefore there is no requirement to install a flow and return as you have suggested, the attenuation tank acts like an oversized pipe. We could install twin connections from CC1 to CC2 as the intention is to have these operate like one joined tank but again the flow calculations prove that so long as the tanks are properly vented the system will surcharge under load. We could just provide one larger tank but we have an eye to future proofing the system should the option to separate the systems ever become viable in the future.

Again I do appreciate your concerns regarding the risk of blockages and thereby uncontrolled flows into the public sewer, but by their very nature any flow control and a reduction in the outflow of a system whether it be hydro-brake or orifice plate will inherently increase the risk of blockages but that is the consequent we have to pay to reduce volumes and discharges rates of surface water flows. As always it is a case of managing the risk of flooding with the requirement to reduce discharge rates. In mitigation we are providing silt traps prior to the attenuation tanks which will help to reduce the risks of blockages. These could be further enhance with the inclusion of silt bucket.

Hopefully, should you wish we can discuss this further, on Wednesday.

Regards

Andrew Bird
Principal Civil Engineer

vkhp-consulting

From: Sarah Burrow <Sarah.Burrow@arun.gov.uk>

Sent: 28 July 2020 16:56

To: Andrew . [REDACTED]

Cc: Paul Cann <Paul.Cann@arun.gov.uk>; Sharon Rowe [REDACTED]

Subject: RE: 40 little Paddocks

Hi Andrew,

My issue is that what you are describing is not reflected in the drawings or the technical information available from Wavin. At present, the orifice is not illustrated on any of the technical information. This is one of the reasons why I have asked (under the advice of the Principle Drainage Engineer) for a site specific drawing which illustrates the product better. This should also clearly indicate inflow and outflow pipes.

At present, your layout shows a single inlet to the garastor from the attenuation tank and a single outlet to the non-return valve. There is no outlet for the 150mm pipe (to go back to the attenuation tank) as that would be the same as the inlet. This is what I was referring to as an online vs offline system. In my rudimentary understanding of the system, on the basis of your descriptions and the Wavin documents, I would expect the network from the west property to discharge from ST1 directly to the garastor rather than via the attenuation tank. Allowing the garastor to then overflow via the outlet pipe to CC1.

Similarly I would have thought that the network from the eastern property would have to go to the garastor rather than via CC1. This could be achieved by locating ST2 on the pipe junction south of its current location and then connecting ST2 to ST1.

In any case it is also quite concerning that whilst flooding on site could be avoided with the use of the overflow in the garastor, the unrestricted flow to the foul sewer would continue until the blockage was identified and cleared. With no indication of blockage on site (beyond regular checking by the homeowner – not a management company in this case I can imagine) this makes extended flooding downstream in the foul sewer more likely.

I'd appreciate your thoughts.

Kind Regards

Sarah Burrow

Engineering Assistant, Engineers

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Monday-Wednesday, Friday: 8:00 – 17:00

Thursday 8:00 – 11:00

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From: Andrew . [REDACTED]
Sent: 28 July 2020 14:11
To: Sarah Burrow <Sarah.Burrow@arun.gov.uk>
Cc: Paul Cann <Paul.Cann@arun.gov.uk>; Sharon Rowe [REDACTED]
Subject: RE: 40 little Paddocks

Sarah

The garastor is a purposely designed flow control chamber, which has twin chambers. The inner chamber being 400mm high. This then operates like a weir, where flows exceed the 400mm storage height in the crates.

The incoming water freely discharges into the inner chamber of the garastor and discharges via a 34mm orifice into the outer chamber at base level, the outfall from the outer chamber is via a 150mm diameter pipe.

When the inflow exceeds the outflow, the inner chamber fills and allows water to back-up into the crates, the outflow from the inner chamber to the outer chamber being throttled to 1.4l/s and will not overflow until it breaches the weir height/crate depth. Whether inline or offline flows are restricted to a maximum of 1.4l/s in normal circumstances.

We have used this chamber on numerous projects as it does give the comfort that if there is a blockage, which would normally be at the orifice, it allows the chamber to overflow the weir and thus reduce the risk of flooding.

Regards

Andrew Bird
Principal Civil Engineer

vkhp-consulting
[REDACTED]

From: Sarah Burrow <Sarah.Burrow@arun.gov.uk>
Sent: 28 July 2020 13:10
To: Andrew . [REDACTED]
Cc: Paul Cann <Paul.Cann@arun.gov.uk>
Subject: RE: 40 little Paddocks

Hi Andrew,

Thank you for the updated calculations. I shall check them shortly. Before I do that can you clarify something for me? I have looked at the Wavin garastor and the construction detail drawing, both imply the system would be offline. The 'weir' system which would help to mitigate blockage seems to apply in the incoming pipes and then the lower pipe to the attenuation system is free flow. On your drainage layout Attenuation Tank CC1 is online. Therefore would the weir system not operate? Or would you link in the attenuation tank to one of the inlet pipes with the outlet blocked?

Furthermore it is still unclear from the drawings and product information the exact location of the orifice within the system and how water drains before the overflow grill 'hat'. I have discussed this with the Principle Drainage

Engineer (Paul Cann - copied in) and he is also unfamiliar with the system. We have agreed that the best way to approach it would be to provide a site specific construction detail drawing including levels. Please can you provide this at your earliest convenience.

The alternative suggestion was to utilise a perforated stainless steel pipe within an inspection chamber at the inlet. This would mitigate risk of blockage before going out to a standard 34mm orifice as agreed.

Kind Regards

Sarah Burrow

Engineering Assistant, Engineers

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From: Andrew [REDACTED]

Sent: 28 July 2020 11:32

To: Sarah Burrow <Sarah.Burrow@arun.gov.uk>; Sarah Burrow <Sarah.Burrow@arun.gov.uk>

Cc: Sharon Rowe [REDACTED]

Subject: 40 little paddocks

Sarah

Wavin produced 2 types of Garastor, one that discharged at 1.7l/s and a second that discharged at 1.4l/s. I now can not find reference to the first so have tried to contact Wavin for confirmation, unfortunately their phones are currently not answering calls.

I have therefore re-run the calculations using the lower outfall rates in case the 1.7l/s Garastor is discontinued and we use the lower rate (see attached) hopefully this will help speed things along

Regards

Andrew Bird

Principal Civil Engineer

vkhp-consulting



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