

[REDACTED]

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

Sent: 01 April 2022 12:36

To: Daniel Bott [REDACTED]

Cc: Bates Ian [REDACTED] Jason Barnes [REDACTED] Michael Hempsey [REDACTED]

[REDACTED] Jack Elliott [REDACTED] 'Sheehan Lucas' [REDACTED] Mark Scott [REDACTED]

Alex Wait [REDACTED]; Paul Westcott [REDACTED]

[REDACTED] Tim Allen [REDACTED] Michael Eastham

<Michael.Eastham@arun.gov.uk>; 'Sheppard Dave' [REDACTED]

Subject: RE: Saltbox Unit 9 site Planning Condition 12 response Surface water

Hi Daniel

Comments in green below;

Regards

Paul Cann
Principal Drainage Engineer
Engineering Services

T: 01903 737819

E: paul.cann@arun.gov.uk

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From: Daniel Bott [REDACTED]

Sent: 17 March 2022 10:20

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

Cc: Bates Ian [REDACTED] Jason Barnes [REDACTED] Michael Hempsey [REDACTED]

Jack Elliott [REDACTED] 'Sheehan Lucas' [REDACTED] Mark Scott [REDACTED]
Alex Wait [REDACTED] Paul Westcott [REDACTED]

[REDACTED] Tim Allen [REDACTED] Michael Eastham

<Michael.Eastham@arun.gov.uk>; 'Sheppard Dave' [REDACTED]

Subject: RE: Saltbox Unit 9 site Planning Condition 12 response Surface water

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Hi Paul,

Further to my previous email, please see attached updated detail from Tubosider which shows the revised drainage layout on the plan.

Kind Regards

Daniel Bott BSc (Hons) IEng MICE
Senior Civil Engineer

Calcinotto

[REDACTED]
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[REDACTED]

From: Daniel Bott
Sent: 15 March 2022 17:11
To: Paul.Cann@arun.gov.uk

Cc: Bates Ian [REDACTED] Jason Barnes [REDACTED] Michael Hempsey [REDACTED]
[REDACTED] Jack Elliott [REDACTED] 'Sheehan Lucas' [REDACTED] Mark Scott [REDACTED]
[REDACTED] Alex Wait [REDACTED] Paul Westcott [REDACTED]
[REDACTED] Tim Allen [REDACTED]; Michael Eastham
<Michael.Eastham@arun.gov.uk>; 'Sheppard Dave' [REDACTED]

Subject: FW: Saltbox Unit 9 site Planning Condition 12 response Surface water [Filed 15 Mar 2022 17:11]

Hi Paul,

Please see attached amended/new information which accommodate your comments below, in addition to some commentary in red I have also added for context.

1. Adjust any pipe gradients as necessary where pipelines involve catchpits ie. no need to allow for gradient through the chamber (inlet and outlet levels can be the same level). This will provide some slight help with in trying to achieve soffit to soffit connections where possible. The design already did not allow for gradients through the chamber. I think there are one or two instances where this was not clear, however, I am not going to pursue the matter.

2. Specify gully lateral gradients/outlet & inlet levels. ie. those that connect to manholes S1 and S3. Laterals to be 150mm diameter laid at 1/150 to keep connection levels as high as possible. Gully lateral gradients and inlet levels shown – unable to lay at 1 in 150 to raise S1 due to very minimal cover which would potentially cause hard spots within the car park construction where cover is less than the asphalt construction depth. Now ok
3. Manhole S3 – error in invert level on layout plan ie. 1.722/1.772. Invert level at S3 corrected to 1.722. ok
4. Manhole S8 is missing connections on manhole level schedule. Connections to S8 added to schedule as requested. ok
5. Incoming connection into manhole S8 from permeable paving (no pipe number specified) – to be 150mm diameter at 1/150 gradient to keep connection as high as possible. Incorporate manhole at end of perforated pipe to accommodate the necessary bend. Permeable paving connections are to remain as 100mm diameter at 1:100 gradient – this is integral to the design in order to contain the short-term duration storm events within the permeable paving sub base without overwhelming the main network. ok
6. Pipeline 1.002 – correct gradient to allow for bypass separator levels. Adjust levels of separator ie. outlet is lower than invert of manhole S11 downstream. Levels of the bypass separator amended. ok
7. Specify all inlet invert levels to attenuation tank. Invert levels to all attenuation tank inlets shown. Include connection at S22 and 375mm pipe inlet levels. Slacken gradients on pipelines 8.000 to 8.003 to avoid an invert to invert connection into the tank. ie. lay 150mm at 1/150, 225mm at 1/225, 300mm at 1/300, if possible.
8. Manholes S6 and S9 – ensure no bends outside of manholes. 45-degree bends are necessary at these locations due to the arrangement of the pre-formed plastic chambers. Particularly for manhole S6, this arrangement is required to avoid clashing with electric car charging points. Bends less than 45 degrees outside of manholes are typical and within industry guidelines and standards. Now you have explained the reasoning behind S6, that is fine, otherwise the chamber could have been repositioned to avoid any bends outside of the manhole. S9 is not a major concern and may be impacted by item 9 below anyway.
9. Pipeline 4.000 (now 7.000) – increase pipe diameter to 150mm and lay at 1/150 gradient. This will raise connection level to manhole S11. Permeable paving connections are to remain as 100mm diameter at 1:100 gradient to contain short term extreme rainfall. If the hydraulic model is relying on flows from the permeable pavement being restricted then fine, however, I am concerned that pipeline 7.000 will be discharging approx. 100mm above the invert of the 375mm pipe so not ideal. You could consider laying the 100mm pipe at 1 in 150 as siltation will not be an issue due to flows passing through a permeable pavement and assuming the model will still work ok. Or you consider a fin drain outlet from the permeable paving which would allow a higher outlet level which will also allow a higher connection.
10. Pipelines 3.000, 3.001, 3.002 – increase to 150mm diameter with 1/150 gradient to raise connection level to manhole S8. Permeable paving connections are to remain as 100mm diameter at 1:100 gradient to contain short term extreme rainfall. This is not draining a permeable pavement so I can't see a reason why it cannot be adjusted.
11. Manhole S7 – two incoming connections with no obvious purpose? This is a small section of perforated pipe within a narrow gravel margin around the building line. It is anticipated that barely any flow will enter these pipes. Ok but please adjust note on plan to refer to manhole S7 as opposed to S2.
12. Manhole S14 – one incoming connection with no obvious purpose? This is a small section of perforated pipe within a narrow gravel margin around the building line. It is anticipated that barely any flow will enter this pipe. ok
13. Manhole S14 – can't see why the system can't be altered to achieve a soffit to soffit connection. We have raised S13 so that S14 inlet/outlet now have level soffits. ok
14. Pipelines 2.000 & 5.000 – increase to 150mm diameter assuming upstream perforated pipe is also 150mm. Permeable paving connections are to remain as 100mm diameter at 1:100 gradient to contain short term extreme rainfall ok
15. Road gullies in southwest corner – specify diameters and gradients and ensure all connect to chambers on the attenuation tank. These are rainwater pipes from the vehicle washdown area. I have added diameters and gradients to the plan as requested. Ok but slacken all RWP + channel outlet gradients (ie. 1/100) so connections into the tank are as high as possible.
16. Gully connection into manhole S22 – reconfigure to improve angle of connection into manhole. We have added a 45-degree bend for straight connection into the attenuation tank. Layout plan not amended + Tubosider plan to be adjusted.

17. Pipeline 1.004 – perhaps upgrade to 300mm diameter laid at say 1/300 in order to provide some resilience with this important pipe and its invert to invert connection with the 450mm pipe. The flow control for this pipe is situated upstream and therefore only a max flow of 2.3l/s will be flowing through. The capacity of the pipe currently specified will easily facilitate this flow rate as the modelling output provided demonstrates. My comment does not relate to pipe flow capacity but the fact that you are connecting a 150mm pipe at invert to invert with a 450mm pipe and therefore more risk of the pipe being obstructed in the future due to any potential issues downstream. It is also a compromise of allowing an invert to invert connection. It would also help facilitate flows from an emergency overflow for exceedance, if one were required/permitted in the future.
18. Pipelines 7.000 (now 9.000) & 8.000 (now 10.000) – upgrade to 150mm diameter. Provide detail of how the connections will be made to the attenuation tank. Permeable paving connections are to remain as 100mm diameter at 1:100 gradient. Pipeline 10.000 gradient slackened - ok I have attached the Tubosider detail drawing which shows connection details. These are typical details but they will obviously need to manufacturer to suit your incoming pipe connection levels - ok
19. Add note – all pipes to be laid soffit to soffit unless otherwise specified. Note added as requested. ok
20. Upstream ends of perforated pipes beneath permeable paving to be capped – add note to construction detail. Note added to construction detail and plans as requested. ok
21. Specify invert levels of head of all perforated pipes (and gradients) on layout plan. Gradients and upstream invert levels added on plan as requested. ok
22. Please confirm that the external levels layout drawing remains unchanged. There have been no changes to external levels. ok
23. Washdown area – has surface water run off into this area been minimised ie. levels indicate that some of the car park falls towards this area. We have added a threshold drain to capture SW runoff prior to entering the washdown area. ok
24. Remove pumping station notes from drainage layout sheets 1 & 2. Notes removed as requested. ok
25. All connections not made to manholes to be made using oblique 45 degree junctions (add note). Note added as requested. ok
26. Provide fully detailed road gully construction details including pipe diameter. Construction detail dwg 0502 attached with gully detail. ok
27. Provide hydrobrake technical details data sheet from the manufacturer. Hydrobrake technical details attached. ok
28. Remove wavin aquacell attenuation tank construction details as no longer relevant, including note 24 on construction detail drawings. Wavin references and detail now removed and replaced with Tubosider note w/ references to manufacturers detail. ok
29. Provide fully detailed construction details for Tubosider attenuation tank including integral chambers/flow control chamber. Tubosider details attached. Your layout plan indicates 4 no. access chambers whilst theirs has 3 no. Clearly indicate 300mm diameter link pipe locations on layout plan. Fully detail make up above the prefabricated access chambers ie. class D400 covers, engineering brickwork, concrete slab spec & dims, etc. Include ladder access as a requirement rather than an option. Not sure why the hydrobrake sump is perforated, please advise/provide more detail. Please adjust detail to suit the 300mm outfall pipe discussed in item 17.
30. Bypass separator – specify class D400 cover/frame. Please confirm that the separator can accommodate 375mm diameter outgoing and incoming pipes. D400 load rating added to drawings. The separator can accommodate up to 300mm diameter so will require a reducer from the 375mm. We have modelled this pipe as a 300mm diameter in the hydraulic calculations to account for this. Very important that the reducers achieve level inverts between the 300mm and 375mm pipes. Please detail this on a drg 0500 so the contractor is very clear on the requirement.
31. Provide construction detail for rodding eyes. Rodding eye construction detail added to dwg 0502 attached. ok
32. PCC ring catchpits; Specify min; 450mm sump. Sump increased to 450mm minimum as requested. ok
33. Permeable paving/collection pipe detail – formation level geomembrane to be permeable as opposed impermeable to make use of any possible infiltration, no matter how minimal. As per Pauls previous comments, we would have concerns regarding the entry of groundwater into the surface water drainage system. Our design does not have the spare capacity to accommodate any potential groundwater entry. I certainly wouldn't want groundwater entering the system either. On previous phases, permeable paving

formation levels were set above peak recorded groundwater levels. Please confirm the recorded groundwater levels at these locations so it can be discussed further.

34. Pipeline 1.003 shown as 450mm diameter on calculations. Indicate diameter/gradient on layout plan.

Pipeline 1.003 essentially does not exist and is a dummy pipe – modelling softwares such as Microdrainage and Causeway flow do not allow a storage structure to be situated within a pipe node and therefore a pipe still needs to be specified to link S11 and S22. In reality, the length of the tank spans in between the two manholes and such pipe is not required. ok

35. Please adjust the hydraulic calculations as necessary to take account of the above comments. Amended calculations attached to reflect the above. There are very small amounts of flooding (less than 0.5cu.m) for the 15-minute duration storms at S1 and S13, however there is available capacity at the adjacent permeable paving at S20 to accommodate the exceedance flows without ponding occurring. Ok but please adjust calcs to suit above comments. Pipeline 1.003 is shown as 450mm diameter? Will be interesting to see the effect of Item 7 on the above ground flooding - may require some pipes to be upsized despite the higher connection level? – hard to say until the model is run.

We are aware that the Tubosider detail attached contains a plan with the previous layout as a background – we are in the process of getting this drawing updated by Tubosider with the new attached layout and will forward on as soon as we receive.

Kind Regards

Daniel Bott BSc (Hons) IEng MICE
Senior Civil Engineer

Calcinotto



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

Sent: 10 March 2022 14:41

To: Daniel Bott

Cc: Bates Ian Jason Barnes Michael Hempsey

Jack Elliott 'Ian Bates Sheehan Lucas

Mark Scott Alex Wait Paul Westcott

Steven Dorricott Tim Allen

Michael Eastham <Michael.Eastham@arun.gov.uk>; 'Sheppard Dave'

Subject: RE: Saltbox Unit 9 site Planning Condition 12 response Surface water

Hi Daniel

Comments below;

1. Adjust any pipe gradients as necessary where pipelines involve catchpits ie. no need to allow for gradient through the chamber (inlet and outlet levels can be the same level). This will provide some slight help with in trying to achieve soffit to soffit connections where possible.
2. Specify gully lateral gradients/outlet & inlet levels. ie. those that connect to manholes S1 and S3. Laterals to be 150mm diameter laid at 1/150 to keep connection levels as high as possible.
3. Manhole S3 – error in invert level on layout plan ie. 1.722/1.772.
4. Manhole S8 is missing connections on manhole level schedule.
5. Incoming connection into manhole S8 from permeable paving (no pipe number specified) – to be 150mm diameter at 1/150 gradient to keep connection as high as possible. Incorporate manhole at end of perforated pipe to accommodate the necessary bend.
6. Pipeline 1.002 – correct gradient to allow for bypass separator levels. Adjust levels of separator ie. outlet is lower than invert of manhole S11 downstream.
7. Specify all inlet invert levels to attenuation tank.
8. Manholes S6 and S9 – ensure no bends outside of manholes.
9. Pipeline 4.000 – increase pipe diameter to 150mm and lay at 1/150 gradient. This will raise connection level to manhole S11.
10. Pipelines 3.000, 3.001, 3.002 – increase to 150mm diameter with 1/150 gradient to raise connection level to manhole S8.
11. Manhole S7 – two incoming connections with no obvious purpose?
12. Manhole S14 – one incoming connection with no obvious purpose?
13. Manhole S14 – cant see why the system can't be altered to achieve a soffit to soffit connection.
14. Pipelines 2.000 & 5.000 – increase to 150mm diameter assuming upstream perforated pipe is also 150mm.
15. Road gullies in south west corner – specify diameters and gradients and ensure all connect to chambers on the attenuation tank.
16. Gully connection into manhole S22 – reconfigure to improve angle of connection into manhole.
17. Pipeline 1.004 – perhaps upgrade to 300mm diameter laid at say 1/300 in order to provide some resilience with this important pipe and its invert to invert connection with the 450mm pipe.
18. Pipelines 7.000 & 8.000 – upgrade to 150mm diameter. Provide detail of how the connections will be made to the attenuation tank.
19. Add note – all pipes to be laid soffit to soffit unless otherwise specified.
20. Upstream ends of perforated pipes beneath permeable paving to be capped – add note to construction detail.
21. Specify invert levels of head of all perforated pipes (and gradients) on layout plan.
22. Please confirm that the external levels layout drawing remains unchanged.
23. Washdown area – has surface water run off into this area been minimised ie. levels indicate that some of the car park falls towards this area.
24. Remove pumping station notes from drainage layout sheets 1 & 2.
25. All connections not made to manholes to be made using oblique 45 degree junctions (add note).
26. Provide fully detailed road gully construction details including pipe diameter.
27. Provide hydrobrake technical details data sheet from the manufacturer.
28. Remove wavin aquacell attenuation tank construction details as no longer relevant, including note 24 on construction detail drawings.
29. Provide fully detailed construction details for Tubosider attenuation tank including integral chambers/flow control chamber.
30. Bypass separator – specify class D400 cover/frame. Please confirm that the separator can accommodate 375mm diameter outgoing and incoming pipes.
31. Provide construction detail for rodding eyes.
32. PCC ring catchpits; Specify min; 450mm sump.
33. Permeable paving/collection pipe detail – formation level geomembrane to be permeable as opposed impermeable to make use of any possible infiltration, no matter how minimal.
34. Pipeline 1.003 shown as 450mm diameter on calculations. Indicate diameter/gradient on layout plan.
35. Please adjust the hydraulic calculations as necessary to take account of the above comments.

Look forward to receiving your revised details.

Regards

Paul Cann
Principal Drainage Engineer
Engineering Services

T: 01903 737819
E: paul.cann@arun.gov.uk

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From: Daniel Bott [REDACTED]
Sent: 03 March 2022 16:57
To: Paul Cann <Paul.Cann@arun.gov.uk>
Cc: Bates Ian [REDACTED] Jason Barnes [REDACTED] Michael Hempsey [REDACTED]
[REDACTED] Jack Elliott [REDACTED] Ian Bates [REDACTED] Sheehan Lucas [REDACTED]
[REDACTED] Mark Scott [REDACTED] Alex Wait [REDACTED] Paul Westcott [REDACTED]
[REDACTED] Steven Dorricott [REDACTED] Roger Spencer
<Roger.Spencer@arun.gov.uk>; Tim Allen [REDACTED] Michael Eastham
<Michael.Eastham@arun.gov.uk>; 'Sheppard Dave' [REDACTED]
Subject: RE: Saltbox Unit 9 site Planning Condition 12 response Surface water
Importance: High

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Hi Paul,

Please see attached revised drainage proposals for the Saltbox Unit 9 project for the release of planning condition 12. The proposals have been amended to lift the drainage system up to achieve a gravity discharge as per the original strategy. We have included on the drainage plan drawing pipe sizes, gradients, cover and invert levels also added to the drawing as requested.

In order to make the gravity system work, the new proposals include laying pipes invert-to-invert on the surface water system and also having a minimum 480mm-670mm cover on the attenuation tank, which reflects the profiling of the external works in this area.

Fortunately, as part of an earlier Value Engineering exercise, the crate attenuation tank was changed to a Tubosider corrugated steel pipe tank with granular surround, and this has therefore allowed us to reduce the cover as required following confirmation from the manufacturer. Please see attached confirmation from Tubosider with regards to loading conditions and storage provided within their system. We are advised the total storage volume is provided by the pipes and the porous nature of the granular surround to the pipes.

We have also attached the surface water model results which were ran for a 5-year, 30 year + 20% and 100 year + 40% return periods and show no flooding in all scenarios. The modelling was undertaken using Causeway Flow software and was run with a MADD factor of 0 and simulated using FEH 2013 rainfall data. We have added the surface water pipe numbers to the drawing so it can be easily referred to the model results.

We trust all of the above enclosures now provide you with sufficient information to confirm to your planners that planning condition 12 has been satisfied.

Kind Regards

Danny

Daniel Bott BSc (Hons) IEng MICE
Senior Civil Engineer

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

Sent: 28 February 2022 13:08

To: Paul Westcott [REDACTED]

Cc: Bates Ian [REDACTED] Jason Barnes [REDACTED] Michael Hempsey [REDACTED]

[REDACTED] Jack Elliott [REDACTED] 'Ian Bates' [REDACTED] Sheehan Lucas [REDACTED]

[REDACTED] Mark Scott [REDACTED] Alex Wait [REDACTED] Daniel Bott [REDACTED]

[REDACTED] Michael Eastham <Michael.Eastham@arun.gov.uk>; Steven Dorricott [REDACTED]

[REDACTED] Roger Spencer <Roger.Spencer@arun.gov.uk>

Subject: RE: Saltbox Unit 9 site Planning Condition 12 response Surface water

Paul

Just to confirm that I will not be reconsidering my response.

There is one thing I would like to verify at this stage; Have you checked the invert level of the 450mm pipe at existing manhole SW900? I note you have it as 1.280, I think the proposed level was 1.250?, but from 'as constructed' drawings I have seen it may be 1.657! (See enclosed).

I would suggest that these levels are double checked as are critical to any scheme. If it is necessary to relay offsite pipes to shallower gradients to help achieve the desired solution, then clearly that is a discussion to be had between the relevant parties.

Regards

Paul Cann
Principal Drainage Engineer
Engineering Services

T: 01903 737819

E: paul.cann@arun.gov.uk

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From: Paul Westcott [REDACTED]

Sent: 25 February 2022 17:00

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

Cc: Bates Ian [REDACTED] Jason Barnes [REDACTED] Michael Hempsey [REDACTED]

Jack Elliott

Ian Bates

Sheehan Lucas

Mark Scott

Alex Wait

Daniel Bott

Michael Eastham <Michael.Eastham@arun.gov.uk>; Steven Dorricott

Subject: RE: Saltbox Unit 9 site Planning Condition 12 response Surface water

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Paul,

Thank you for your further comments but just for your information we have no direct connection with Hydrock as they were working for and producing supporting information for the site wide developers who again we have no working relationship with. We are part of a team who are working for a client who has purchased one of the plots put up for sale.

We are still of the opinion the original strategy was flawed and contained insufficient detail to prove to the LPA that a gravity solution was deliverable and this should have been identified during the consultation process and further detail and supporting information requested by the LPA before any approval was given.

This is the situation we are encountering with LLFA's in other areas where the Hydrock strategy as presented would have been deemed insufficient in its content and detail to prove the solution was deliverable. In fact in some cases we are finding the designs need to be up to almost a construction issue and fully detailed before they are accepted and are way past a strategy proposal.

We are sure amending the FFL is not an option as the LPA are the ones who approved the current value.

We therefore ask again in this instance you reconsider your comment to your Planners.

Thanks.

Regards
Paul

Paul Westcott
Associate Director

Calcinotto



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

Sent: 25 February 2022 15:42

To: Paul Westcott

Cc: Bates Ian; Jason Barnes; Michael Hempsey

Jack Elliott

Ian Bates

Sheehan Lucas

Mark Scott

Alex Wait

Daniel Bott

Michael Eastham <Michael.Eastham@arun.gov.uk>

Subject: RE: Saltbox Unit 9 site Planning Condition 12 response Surface water

Paul

Whilst I appreciate you have lost 150mm in floor levels (maybe there is scope to talk further with the planners about this to reinstate 2.900?), at present, I am not convinced that a gravity solution is not possible on this site. I would strongly suggest that you liaise with Hydrock, if you are querying their design. Planning approval was based on a gravity system and that is what needs to be achieved one way or another.

From what I recall they were also proposing more storage than the 570m3 you quote, which may have been an overestimate, so the calculations will need to be verified.

Obviously crates can also be spread over a larger area to reduce depth. Cover to crates can also be reduced depending on wheel loadings, CBR, protective capping, rating of crate, etc. See enclosed Permavoid manual (pages 46-49). Locating crates in areas less likely to be subject to HGV loadings also helps where possible. As mentioned utilising the storage in as much permeable paving as possible also will assist.

Regards

Paul Cann
Principal Drainage Engineer
Engineering Services

T: 01903 737819
E: paul.cann@arun.gov.uk



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From: Paul Westcott [REDACTED]
Sent: 25 February 2022 14:44
To: Paul Cann <Paul.Cann@arun.gov.uk>
Cc: Bates Ian [REDACTED] Jason Barnes [REDACTED] Michael Hempsey [REDACTED]
[REDACTED] Jack Elliott [REDACTED] Ian Bates [REDACTED] Sheehan Lucas [REDACTED]
[REDACTED] Mark Scott [REDACTED] Alex Wait <[REDACTED]> Daniel Bott [REDACTED]
Subject: RE: Saltbox Unit 9 site Planning Condition 12 response Surface water
Importance: High

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Paul,

The issue we have is the building is set at 2.75 and the invert level of the outgoing off site connection is at 1.28. That leave little or no room to design a system that has based on our calculations approximately 570m3 of storage.

The Hydrock strategy solution you refer too does not work as they have a tank which has barely 450mm of cover over crates which is not acceptable to the manufacturers. In addition on the Hydrock strategy we have been supplied with, it has no permeable paving proposed it only showed bare bones pipelines which clearly would have little or no cover. We have included large areas of permeable paving so already we are bettering their design.

The issue of cover has also been exacerbated by the fact that on the Hydrock drawing the FFL was noted as 2.90 but we were informed we had to use the Planners approved FFL of 2.75.

The site topography itself does not lend it self to extending further the permeable paving to make best use of the storage in the porous sub base. Believe you me we don't include pump stations unless it is necessary and in this instance there is clearly a

shortage of level difference to play with and would include too much risk on the drainage to have everything designed to be below standard and at best in small part only at the absolute minimum.

In some respects you could say the initial Hydrock strategy which was submitted and consulted on at Planning stage was flawed based on what you are saying now in that it showed traditional pipework system, gullies and a below ground tank and little or no detail on levels etc to prove that it was deliverable and therefore you could say should have been challenged more at that stage. We have actually taken that strategy and bettered it to work around the site constraints we have, so I am a little confused why we should now be told its not acceptable. Just to stress again we will only include a pump system when it is absolutely necessary. The allowable flow rate is so low and therefore the attenuation requirement is very high.

Based on the forgoing explanation on how we have arrived at our proposals we trust you will be able to review your response to your planners that the proposals put forward are acceptable in this instance based on the site constraints for this particular plot.

Thanks.

Regards
Paul

Paul Westcott
Associate Director

Calcinotto



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

Sent: 25 February 2022 14:14

To: Paul Westcott

Cc: Bates Ian, Jason Barnes, Michael Hempsey, Jack Elliott, Ian Bates, Sheehan Lucas, Mark Scott, Alex Wait, Daniel Bott

Subject: RE: Saltbox Unit 9 site Planning Condition 12 response Surface water

Hi Paul

Just sending a quick message as I am out on site visits. Just want to be clear, that you must come up with a gravity solution, as was envisaged for every phase of this development. A pumped solution will never be acceptable.

Designing a system as shallow as possible is obviously key to the solution. Utilising as much permeable paving as needed (perhaps some with controlled outflows) and avoiding the use of conventional road gullies will help. Reducing the use of pipes to convey water across the site will also assist, where conveyance can be achieved through linked permeable paving, etc.

In the meantime, you may wish to speak to Hydrock who undertook the strategy and preliminary design for unit 9.

Regards

Paul Cann

Principal Drainage Engineer
Engineering Services

T: 01903 737819

E: paul.cann@arun.gov.uk



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From: Paul Westcott [REDACTED]

Sent: 25 February 2022 13:22

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

Cc: Bates Ian [REDACTED] Jason Barnes [REDACTED] Michael Hempsey [REDACTED]
[REDACTED] Jack Elliott [REDACTED] Ian Bates [REDACTED] Sheehan Lucas [REDACTED]
[REDACTED] Mark Scott [REDACTED] Alex Wait [REDACTED] Daniel Bott [REDACTED]
[REDACTED]

Subject: Saltbox Unit 9 site Planning Condition 12 response Surface water

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Paul

Just left a message on your answer phone regarding the above. I would appreciate if you could give me a call as soon as possible so we can explain to you where and how we have arrived at the proposals put in to support the submission.

Thanks very much.

Regards
Paul

Paul Westcott
Associate Director

Calcinotto



www.calcinotto.co.uk

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