

Please upload the amended drainage plans onto Ocella for BE/110/19/DOC – Salt Box.

Thanks,

Michael

Paul,

Thank you for ringing me.

As discussed I have made the changes and attached the drawings and issue sheet.

Regards,

David Gallimore
Infrastructure Engineer



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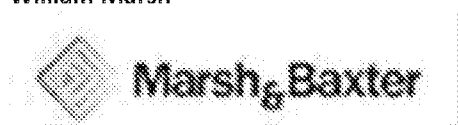
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th

Paul, I have spoken to David and Mike this morning (David is already working away on responses) and they are going to spin responses back to you today. Removing the DOC is incredibly important and urgent for us so on the basis that they respond promptly I would be most grateful if you could close this out today for us provided the information you receive is satisfactory on the points below

Will

William Marsh



3rd Floor
18 Savile Row
London
W1S 3PW

[REDACTED]

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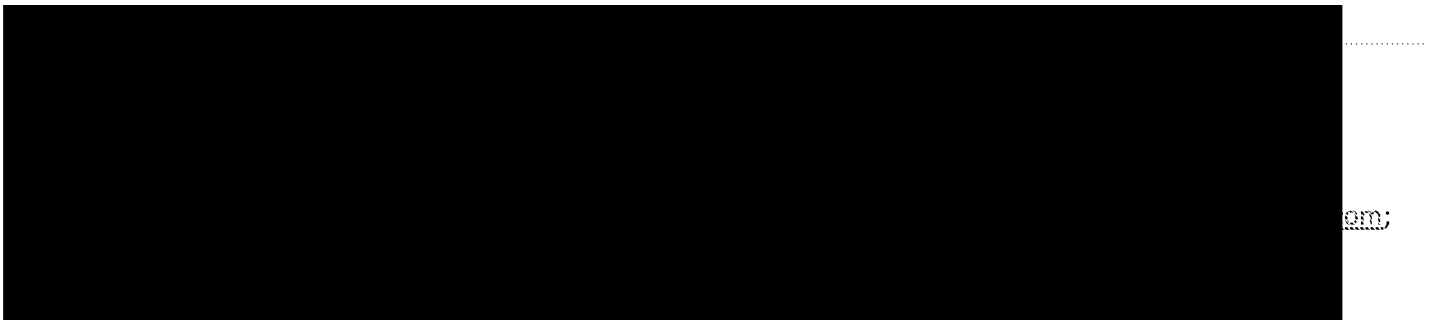
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Mike

This is detailed design and needs to be right – items B & C are particularly fundamental. The contractor will need to build the system from these drawings.

These are not all new comments, these are mostly unanswered items from my previous comments.

Paul Carrn
Senior Engineer (Drainage & Coastal)



Good Morning Paul,

Appreciate the comments. However, we feel the level of detail you have us to provide goes above and beyond what would normally be expected for a discharge of condition.

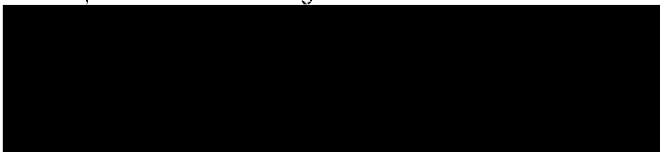
We fully understand Arun's position as the approving authority, you need to be satisfied that the drainage system will not impact on flood risk to the surrounding area. I believe we have done this and provided you with sufficient information to discharge the planning conditions.

This has to be wrapped up today, we can't keep responding to comments on the finer details of the design.

I trust you appreciate the position we are in and will conclude your comments accordingly.

Happy to discuss if needed.

Many thanks
Mike Griffin
Principal Infrastructure Engineer

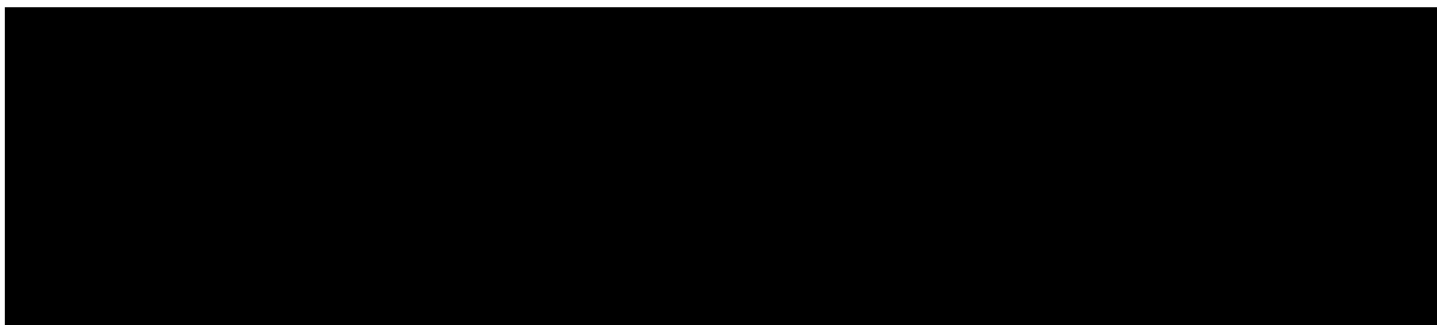




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Hi David

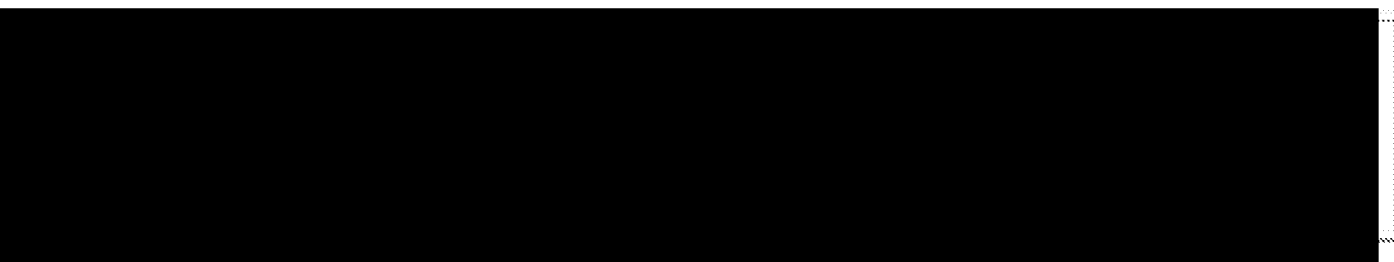
Comments;

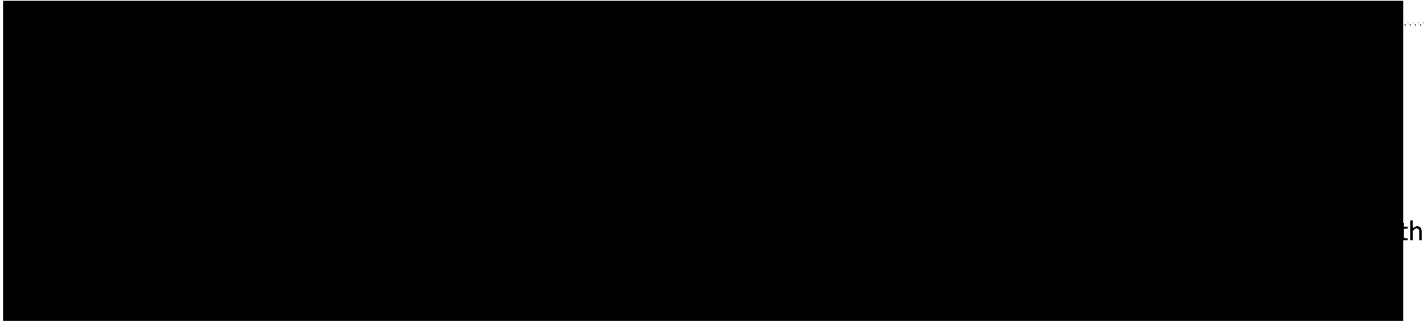
- A. MH SW-209 - Slight alteration required to ensure 225mm pipe connects to 450mm pipe at soffit to soffit level.
- B. Tanks AT-201 & AT-202 - details do not show how the pipes pass through the crates. Please detail in a cross section.
- C. Tanks AT-201 & AT-202 – I note the permeable geotextile now specified, however, you need to provide the peak groundwater level at these locations (relative to the proposed ground levels) to ensure that storage is not compromised by groundwater.
- D. Class S and Class Z bedding details still need to specify the min. 150mm (full surround) of shingle/concrete.

Await your revised drawings.

Regards

Paul Cann
Senior Engineer (Drainage & Coastal)





Paul,

Thank you.

Please see link below to the revised drawings and report following your comments below. (issue sheet attached for reference)

Download link

<https://we.tl/amgwQB7M>

Access Road

Item 6 = Drawing Updated - Cross section and notes added to drawings. Drainage amended to be located central to the culvert.

Item 8 = Drawing Amended - 7104 to show correct Mh ref.

Item 21 = Drawing Updated - Note added to FC details to be read in conjunction with MH Type 2 detail on drawing 7100.

Unit 2

Item 4 = Drawing Amended - Noted I have slackened the pipes in Unit two and raised the FC to allow for a soffit to soffit connection (pipe and detail also amended on drawing 7103)

Item 13 = Drawing Amended - AT-201 access point added and d400 note included. Min 300mm dia T junction detail added to drawing 7103. Perforated pipe shown more clearly within the tank details.

Item 15 = Drawing amended – permeable membrane note added to tank details. See snapshot below from report (I trust this will be suitable)

2. CONDITION 9: SURFACE WATER DRAINAGE

2.1 Surface water run-off discharge destinations

The discharge of surface water run-off has been considered in accordance with the hierarchical approach:

- Infiltration
- Surface Water Body
- To dedicated surface water sewer (public, highways or otherwise)
- To a combined sewer
- To a foul sewer

Infiltration testing was carried out during both the Phase 2 Geo-Environmental Assessment and Supplementary Ground Investigation (both by EPS).

Due to the low permeability values recorded across the site, and the presence of high groundwater, infiltration to ground is not considered to be viable as the primary method of surface water disposal for this development.

Surface water run-off from the pre-developed site currently discharges into the ditch / watercourse on the western boundary during the more extreme storm events when the ground becomes saturated. Therefore, in order to mimic the existing situation, discharge to a surface water body is the preferred method of surface water disposal for the new development.

Note: Whilst infiltration to ground is not considered to be viable as the primary method of surface water disposal from this phase of the development, it is anticipated that a small amount of infiltration could potentially be achieved when regional ground water levels are low or during smaller more frequent rain fall events which would reduce the impact of surface on the watercourse.

The 2 no. cellular attenuation tanks located within Unit 2 have been specified with a permeable membrane however no infiltration rate has been taken into consideration within the calculations due to the variability of rates from seasonally high groundwater.

Item 17 = Drawing Updated - As 21 above.

Item 28 = Drawing Updated – note added to type z bedding detail

O&M Manual

Item 2 = report Updated – Text Added to Report

I trust this is now everything you need to discharge the conditions.

Regards,

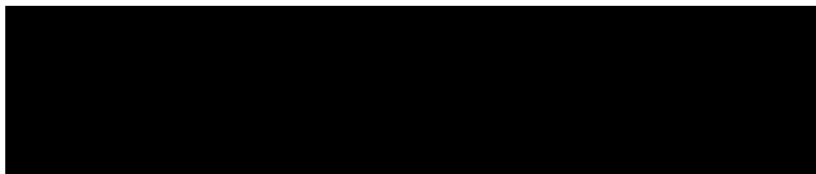
David Gallimore
Infrastructure Engineer



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David

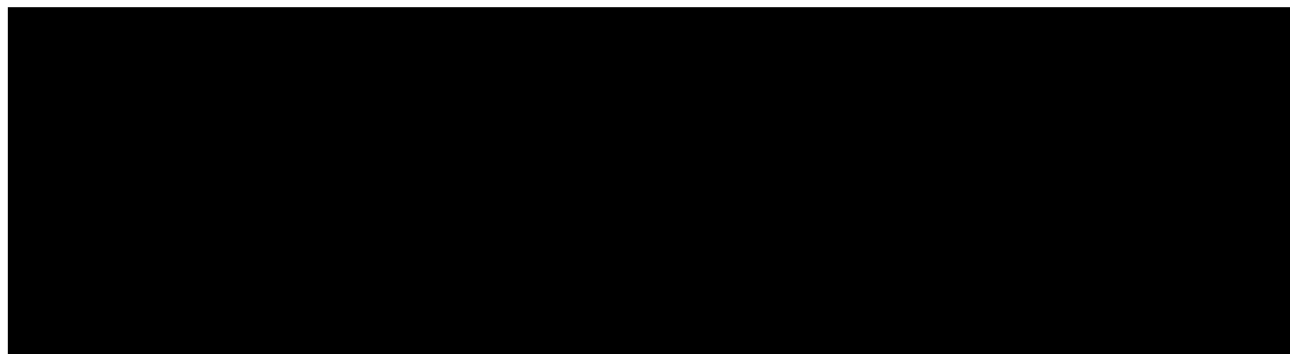
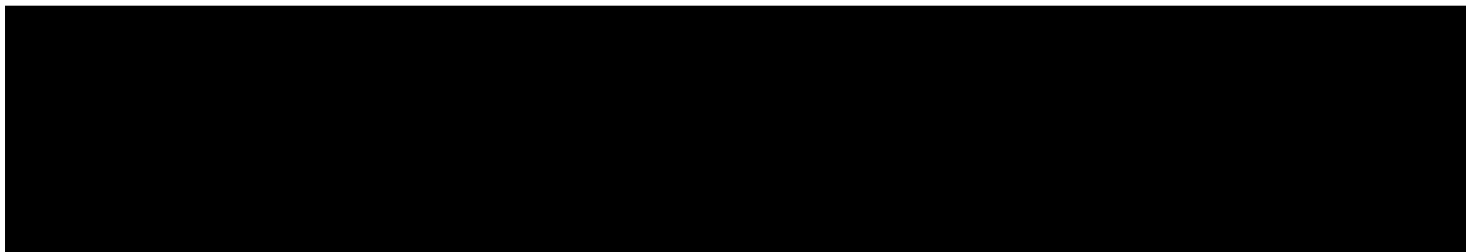
Item 15 – if there is a chance of infiltration then the liners can be permeable rather than impermeable. It makes sense to utilise any infiltration, no matter how small, where ever possible. You would still keep the formal outflow pipe as proposed. The main thing that will dictate the use of infiltration is groundwater levels recorded at the locations of the two tanks. If the peak GWL is lower than the base of the tank, then use permeable liners.

This will be the same requirement for the rest of the site when they parts come forward.

Hope that makes sense.

Regards

Paul Cann
Senior Engineer (Drainage & Coastal)



Paul,

Comments below.

Will amend and send back to you ASAP.

Regards,

David Gallimore
Infrastructure Engineer

RW



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David

Comments below;

Access Road

6. I understand that you will be employing a third party to design the tank and note the recently submitted details from them. Please add the cross section detail of the 600mm channel version to the drawings and suitable notes to say that it will be designed accordingly by Fpmccann. Based upon current proposals the min. cover to the tank will in the region of 220mm. Add a suitable note to say that the tank will be designed to suit cover and HGV loadings. As they can only manufacture the channel in the centre of the box culvert, you will need to adjust all relevant manhole positions to suit. Ok.

8. Drg 7104 still showing reference to SW-209 on tank construction detail. Ok. We'll amend

21. Even with the hydro international details, there is insufficient detail, please add a note 'to be reading in conjunction with type 2 manhole detail on drg. 7100) Ok

Unit 2

4. Whilst there has been improvement, we are still not achieving a soffit to soffit connection. Please investigate slackening the gradient between SW-201 and FC-201 in order to achieve this. We will look into this.

13. AT-202 access point noted. AT-201 still requires a similar access point for inspection. This arrangement needs to also be shown on the construction details, I would suggest a minimum 300mm diameter pipe, connecting via a T junction and fitted with D400 cover. The construction detail drawings also needs to show how the perforated pipe is incorporated within the cell structure (I note the SDS brochure but the drawings need to show the arrangement). Ok, we will update detail.

15. Please advise on the location of drawing; SAL-HYD-XX-ZZ-RP-C-0010-03. This will need to confirm if infiltration is viable or not at the two tank locations. Can you confirm what you mean by this?

17. See item 21 above. OK

28. Drawing still needs to be amended. Ok.

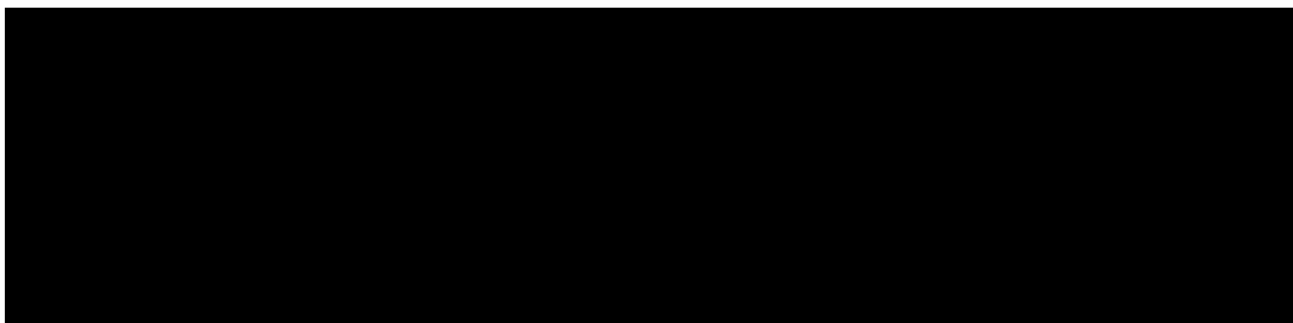
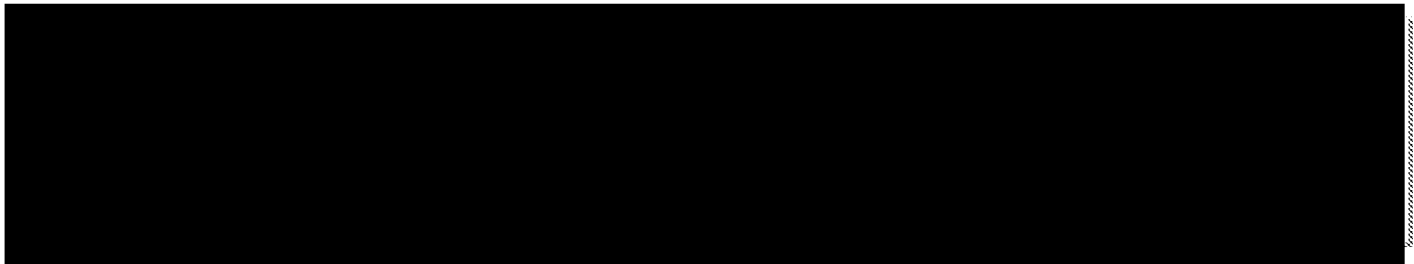
Management & Maintenance Manual

2. More detail is required in terms of describing how networks 1 & 2 work ie. needs to describe the individual components (ie. storage tanks, permeable paving, hydrobrakes, oil interceptors, gullies, fin drains, channel drains, etc) and how they interact with one another. Please note that the detailed description only needs to cover unit 2 and the estate road. The manual will need to be amended in the future when the drainage associated with other units is agreed. OK. We will add text.

Look forward to hearing from you further.

Regards

Paul Cann
Senior Engineer (Drainage & Coastal)



Subject: RE: SARBEX - BE/110/19/DOC - Conditions 3 and 10
Importance: High

Paul,

As discussed yesterday please see enclosed revised drawings updated from the comments below.

Please see comments below in Green.

I have seen your email with the suggested amendment to adding a manhole downstream to SW-211 and amended drawing 7010 to suit.

Link below to revised drawings/reports and information requested (issue sheet attached for reference)

Download link

<https://we.tl/t-wQMoSTfs3i>

We trust that this information provided is sufficient for sign off and it goes without saying how critically urgent this is to be closed out.

Upon approval of drawings we will append and update drainage strategy report to suit.

Regards,

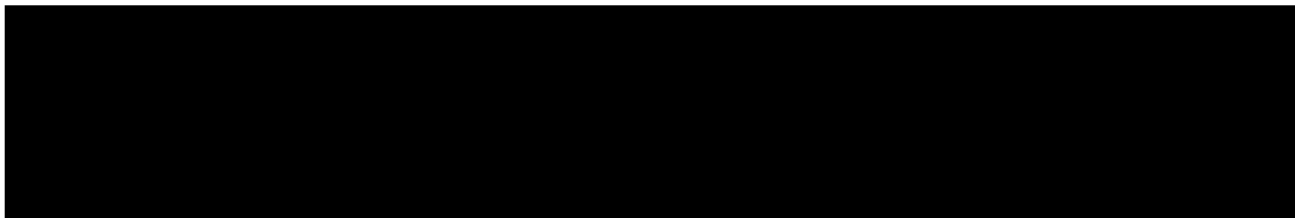
David Gallimore
Infrastructure Engineer



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David

Further to receipt of your revised drawings, etc, I can now confirm the following comments (item numbers relate to those previously sent);

Access Road

3. I note the 170mm fall. Please note previous comment in achieving self-cleansing velocity in the low flow channel ((assume channel (yet to be specified) runs full bore)). This may mean improving the gradient further? Noted awaiting response from Culvert Manufacturer for specifications/loadings/details. Will send once received. See Below

See response from Culvert specialist below:

- Spec/size of culvert – As our Box Culvert units are a bespoke product we can design them to your specification, a Box Culvert unit with internal dimensions of 5000x1500mm is something which we can certainly provide.
- Full construction details of the culvert – As per previous note, our Box Culvert units are a bespoke product, therefore we do not have any construction details as these are undertaken on a project by project basis once we are in receipt of an order. However, our other alternative is to work under a letter of intent basis on which we can provide design calculations / intermediate unit drawing only for approval submission. If the order for the Box Culverts was not placed with FP McCann following the submittal of this information then there would be a £1,000 design fee that would need to be paid.
- Loading capabilities (minimum allowable cover for culvert under a road with frequent HGV use) – Box Culvert units are typically designed for compliance with Eurocodes, I've attached our data sheet for your information. Please satisfy yourselves that this is suitable for your requirements. (document included in link)

4. Awaiting information. Finished levels plan is ready to go will send with any updates following these recent comments. Drawing 7220/7221/7222 attached.

6. Awaiting information. Please note that the tank construction detail on drg. SAL-HYD-00-ZZ-DR-C-7104 Rev P01 will need updating. This includes the tank base levels. As note 3 Detail revised on drawing 7104

7. Awaiting information. As note 3

8. Drg 7104 is out of date in terms of manhole referencing/levels/does not show a fully detailed catchpit/s. I would suggest a note is added to say to be read in conjunction with the fully detailed catchpit detail on drg. 7102. Drawing revised and Note added to 7104

Also, add a note to the detail on drg. 7102 regarding ring diameters – ie. add table 'sewers for adoption'. Sewers for adoption table added to drawing 7104

The layout plan 7020 key specifies 1.2m dia catchpits but some will be larger diameter due to the larger diameter pipes being incorporated. For example, the catchpits associated with tanks should be 1.5m dia. Please adjust as necessary. Drainage legend note amended on drawing 7020

15. Noted but remove the 90 degree option. Ok. We will amend drawing. Drawing 7102 revised

16. The gully detail shows 4 options ie. RGR1 to 4, hence, it need to be clear which option applies to each gully. Use RGR4. Will update detail. Drawing 7102 revised

18. Specify MH SW-202 as a catchpit. Ok. We will add note to drawing. Drawing 7010 revised

20. Specify length of rocker pipe. Concrete slab pipe protection construction detail not provided. Specify flap valve manufacturer/model. Noted. Will add rocker pipe table to drawing. Type z concrete encasement will be added. Flap note will be added. Drawing 7110 revised.

21. Please make it clear on the hydrobrake chamber details (with a note) that it should be read in conjunction with the manhole construction details. I know there is a note pointing to the base on the typical hydrobrake detail above FC-201/FC-501 but just make it clear they need to look at the manhole construction detail, not just for the base but all the other components too, ie, rings, concrete surround to rings, brickwork under MH frames, etc. I have sent Hydro International the design for the hydro brakes who will provide full details for the flow controls and I will provide more details on the flow controls in the drawings as noted. Hydro International details added to drawing 7103

Unit 2

2. I don't see why the gradient cannot be improved to achieve the 1 m/s at full bore. This can be achieved by improving the gradient to 1 in 400 ie. an approx. 74mm additional fall, even if it means adjusting the steeper gradients upstream and downstream. Noted. Will amend to show 1:400 gradient. Drawing 7010 revised

4. Whilst hydraulic calculations may be satisfactory, this is not good practice and could lead to operational issues. Why can't the gradient between SW-1104 and the headwall be slackened to lower the 450mm pipe? This will also aid item 2. Will review along with item 2. Drawing 7010 revised to improve connection level

9. Remove 90 degree option from detail. The detail only allows for connections to pipes up to 300mm diameter. Specify arrangements for connections to 450mm dia. pipes. Ok. As note 15. As above.

10. The gully detail shows 4 options ie. RGR1 to 4, hence, it need to be clear which option applies to each gully. As note 16. As above.

12. Specify length of rocker pipe. Concrete slab pipe protection construction detail not provided. Specify flap valve manufacturer/model. As note 20. As above.

13. The proposed vents only need to connect to the side of the crate tanks and installed as per manufacturers recommendations (add note). Tank AT-201 construction detail still shows 400mm diameter pipes. Both tank construction details need updating (fully detailed) to reflect the revised arrangement of running a pipe through the structure (pipe to be perforated). Specify rodding eye invert and cover levels at AT-202. As requested a means to inspect the crates at strategic locations is required on both tanks – ie. similar too <https://www.polypipe.com/civils-and-infrastructure/water-management-solutions/polystorm-geocellular-system/polystorm-access> Noted. Will contact tank supplier for advice. Details and plan revised to show perforated pipes. Spoke to SDS regarding the need for including inspection points within the tank and they point out that SDS use a closed cell structure and does not require access where polypipe's open cell system does. However they suggest adding a vertical rodding point mid-way through the tank and to use the Geolight 400 cellular crates (notes all added to the drawings)

14. Base of tank on construction detail/plan shown as 0.800 as opposed to 0.850? Will amend to show 0.850 drawing 7010 revised

15. Please provide a copy of SAL-HYD-XX-ZZ-RP-C-0010-03. Ok. As discussed I will include the GI report as well. Attached.

16. Construction detail for AT-201 does not mention a membrane. To AT-201 & AT-202 construction details, add the crate manufacturers recommended membrane specification. Ok. Note to be added. Drawing 7103 revised with note

17. Awaiting information. As note 21. As above

19. SDS crates notes but please also specify the model. Ok. We will add note to drawing. Note added to drawing 7010 and 7103

23. Indicate on drawings that ACO sumps are to be provided on outlets. Ok. We will add note to drawing. Notes added to 7010

25. Construction detail not updated. Ok. We will change text on drawing. Drawing 7102 revised.

28. Revised drg. 7101 not received. Noted, will send. Attached.

Management & Maintenance Manual

2. How the system is designed to operate needs to be explained in words in the manual, in order that those maintaining the suds can understand how the system works relative to what is shown on the attached design drawings. Ok. Text to be added. Report updated.

4. Reply still required. We weren't involved in the initial discussions with highways on the access road adoption but we will check with the team what has been discussed/agreed. We understand that discussions were had with WSCC Highways regarding the tank and it was deemed acceptable.

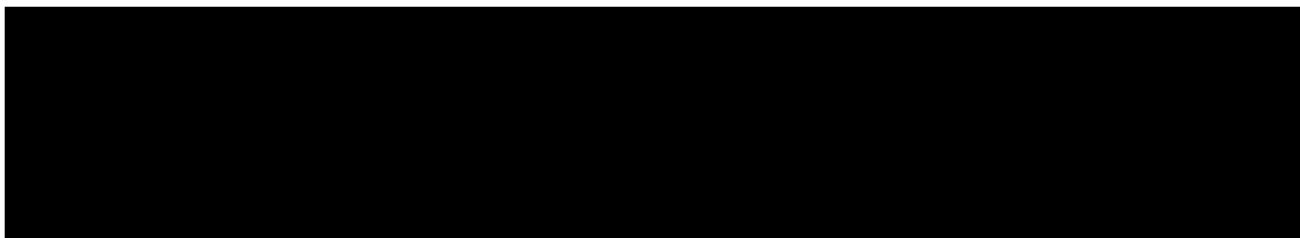
7. Add text to say that the contents of the tank will be disposed of in an appropriate manner and treated as contaminated/hazardous waste. Maintenance matrix table note requires that the maintenance contractor 'Conduct safe silt/contaminant removal in accordance with waste transit and disposal regulations' which we hope you will agree is essentially the same as your suggested note

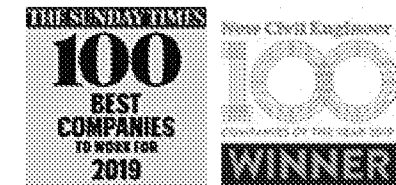
Please note that the supplied drg. SAL-HYD-00-ZZ-DR-C-7000 Rev P04 (Site Drainage Strategy) does not fully replicate the current drainage proposals for the estate road, etc, but I guess this will be updated accordingly. Noted and will be updated. Drawing 7000 revised

Look forward to hearing from you further.

Regards

Paul Cann
Senior Engineer (Drainage & Coastal)





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Hi Mike

We have now looked at your further proposals, our comments are below;

Access Road

1. The stretch road of from hammerhead by the foul pumping station towards manhole SW-511 does not appear to have any surface water drainage associated with it. Please advise/detail.
Drawing updated to show drainage.
2. Pipeline SW-507 to the headwall is showing planting over/within close proximity. Please remove as necessary.
Removed from drainage drawings.
3. The concrete box tank appears to have no gradient. Please rectify to ensure self-cleansing in the low flow channel.
170mm fall shown across culvert.
4. Provide a plan showing finished levels for the road.

Noted. Information to follow this week.

5. Specify pipe diameters/gradients from control manhole FC-501 to oil interceptor and FC-501 to box tank.
Added to drawings.
6. Provide fully detailed construction drawing for box tank, including low flow channel within.
Noted. Information to follow this week.
7. There is minimal cover to the box tank – please provide structural calculations to ensure no detriment due to vehicle wheel loadings/movements.
Noted. Information to follow this week.
8. Provide fully detailed construction drawing for the manholes between the box tank sections and showing their connectivity with the tank. All these to be catchpit manholes. The plans need to clearly indicate which are catchpits as there are some discrepancies between drawings.
Sections 3-3 and 4-4 added to drawing 7104.
9. All road gully connects to tank to be made at soffit to soffit level or near as possible. Add notes.
Note added to drawings.
10. One road gully is on top of the box tank and would not be possible to construct and would also result in an unacceptable connection into the top of the tank . Please reconfigure as necessary.
Amended to show gullies connect into manholes.
11. Manhole SW-505 to be catchpit manhole.
Added to drawings.
12. Manhole SW-504 - 450mm connection not connected at soffit at soffit level and the invert is lower than the downstream invert. The 300mm connection into this manhole needs a slight adjustment to make it connect at soffit to soffit level.
Checked and amended.
13. Specify pipe diameters/gradients between manhole SW-505 and box tank.
Added to drawings.
14. Manholes SW-508 & SW-509 – Specify D400 covers as opposed to B125.
Amended on drawings.
15. Where road gullies are being connected to pipelines, oblique 45 degree junctions to be used, ensuring the connection is made at 10 or 2 o'clock, as per a clock face, assuming to the top of the pipe being connected to is 12 o'clock. Add note.
Detail added to drainage details drawings.
16. There are numerous types of road gully as per the construction detail. Specify which type applies to each gully.
Only a road gully detail shown. Please clarify.
17. Gully near manhole SW-503 – connect into manhole rather than onto the pipeline.
Amended on drawings.
18. Clearly indicate on plans which manholes are to be catchpits.
Indicated on plans.
19. Headwall – An activity permit is required from the Environment Agency for the connection to the 'main river'. This will include their agreement to the headwall construction, discharge of flows and erosion control measures. Add a suitable note.
Note added to drawings.
20. Despite item 19, please include rocker pipes on the construction detail. Reference to drg. 7020 should refer to the layout arrangements rather than 'details'. A construction detail is required for the concrete protection slab pipe protection and the full extent of this type of protection shown on the drawings. A flap valve to be specified on the end of the pipe.
Rocker pipe added and flap valve note added to outfall details.
21. Control chamber FC-501 – cover level differs between plan and construction details. Construction drawing to be fully detailed ie. dimensions, ring diameter, materials, etc.
Cover levels amended. Details added.
22. Manhole SW-507 – is this manhole required?
SW-507 required near outfall but SW-506 can be removed.
23. Specify pipe materials for all pipelines.
This can be found on the drainage legend (all clay unless noted otherwise.)

Unit 2

1. The 450mm pipe on the north side of unit 2 which discharges at the headwall – assumed to be draining a future phase, however, how are these flows being attenuated?
Note added to indicate future phase drainage (this is to be attenuated in the units in the future phase).
2. SW-1002 to SW-1004 needs its gradient improving to provide self-cleansing velocity of 1 m/s at full bore. To get agreed flow rate (5 l/s) and outfall levels to work these pipes need to be flat. If achieve self-cleansing this will push the headwall down 500mm or both unit 3 or 4-8 plots will need to raise 500mm.
3. SW-1004 to SW-1005 – Levels indicate no gradient.
Amended on drawings.
4. Manhole SW-1004 150mm outlet from flow control chamber shown connecting invert to invert with 450mm pipeline – needs to be soffit to soffit.
Run required invert to invert to achieve extremely tight levels. Included and considered acceptable with calculations.
5. Headwall – Althon model H3C not suitable for a 450mm pipe.
H6C headwall detail added.
6. Pipeline SW-1002 to headwall is showing planting over/within close proximity. Please remove as necessary.
Removed from drainage drawings.
7. Manhole SW-205a to be a catchpit.
Added to drawings.
8. Numerous pipelines are shown as 400mm diameter which is an unconventional diameter. Please adjust to 450mm.
400dia pipes changed to 450dia pipes. Some levels changed to suit pipe size.
9. Where road gullies are being connected to pipelines, oblique 45 degree junctions to be used, ensuring the connection is made at 10 or 2 o'clock, as per a clock face, assuming to the top of the pipe being connected to is 12 o'clock. Add note.
Detail added to drawing 7102.
10. There are numerous types of road gully as per the construction detail. Specify which type applies to each gully.
Only a road gully detail shown. Please clarify.
11. Headwall – An activity permit is required from the Environment Agency for the connection to the 'main river'. This will include their agreement to the headwall construction, discharge of flows and erosion control measures. Add a suitable note.
Note added to drawings.
12. Despite item 11, please include rocker pipes on the construction detail. Reference to drg. 7010 should refer to the layout arrangements rather than 'details'. A construction detail is required for the concrete protection slab pipe protection and the full extent of this type of protection shown on the drawings. A flap valve to be specified on the end of the pipe.
Rocker pipe and valve note added.
13. Geocellular tanks AT-201 and AT-202 – provide vent and a means to access crates for inspection.
Added to drawings.
14. Is there scope to reduce base level of tank AT-202 to say 0.85 to improve hydraulics?
Yes. Dropping to 0.85 can increase the tank size from 800mm to 1000mm and decreases site area of tank.
Updated on drawings.
15. Has any infiltration potential been ruled out for tanks AT-201 and AT-202? Please clarify.
Refer to SAL-HYD-XX-ZZ-RP-C-0010-03.
16. Dependent on item 15, clearly specify on both construction details the permeable/impermeable membrane's, manufacturer/product name.
Note is on drawings for a membrane (tank supplier to provide details of the membrane).
17. Control chamber FC-201 –drawing to be fully detailed ie. dimensions, ring diameter, materials, etc.
Noted. Information to follow this week.
18. Control chamber FC-1001 – Not located on layout plans. Is this in relation to item 1?
FC-1001 removed from plan and now removed from details.
19. Specify crate manufacturer/model, ensuring the chosen product is suitable for the anticipated vehicle wheel loadings/movements.
Both tanks at 1.0m deep so SDS would be recommended (they also provide tank specs for vehicle loading at a reduced depth).

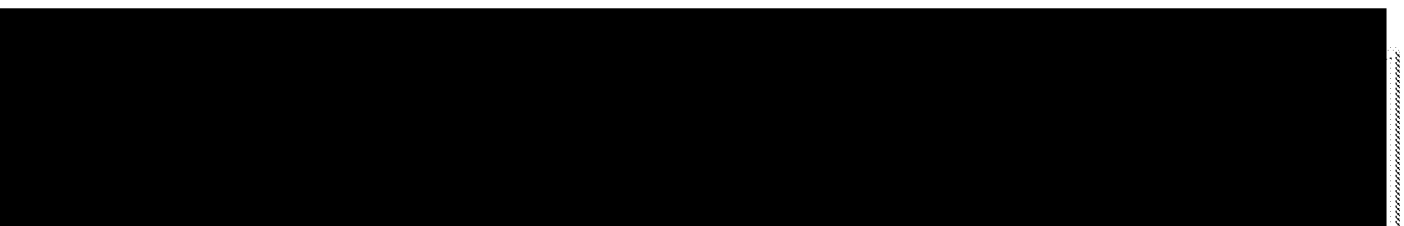
20. Manhole SW-213 – pipes to be laid soffit to soffit.
Amended on drawings.
21. Manhole immediately downstream of tank AT-202 has differing reference on the plan and construction details.
Amended on drawings.
22. Increase channel drains from 100mm wide to 200mm wide.
Channels in larger areas increased to 200 and the smaller areas increased to 150.
23. All manholes downstream of or receiving direct connections from channel drains to be catchpits.
All aco's provide a sump at outlet.
24. Permeable paving sub base – specify as clean (no fines).
Priora aggregate is a Marshall's product which has no fines. Note added to details in the avoidance of doubt.
25. Increase fin drain outlet from 100mm diameter to 150mm diameter.
Note added to drawing.
26. Manhole type 2 and catchpit manhole – include ring diameter table from SFA7.
Added to drawing.
27. Manhole SW-213 – is the cover level correct?
Yes. Refer to drawing 7210
28. Pipe bedding detail – min. 150mm full bed & surround for class S and class Z. Add note; All vehicular areas <1.2m cover to receive class Z bedding.
Noted on bedding detail.
29. Specify pipe materials for all pipelines.
Indicated on drainage legend.

Management & Maintenance Manual

1. It is noted that the system is 'anticipated' to be maintained by the management company. This needs to be more definite ie 'will be'.
Updated in report.
2. The manual needs to explain how the system is designed to work, naming the individual components in the process.
Please refer to SAL-HYD-XX-ZZ-RP-C-0010-03.
3. Include catchpit manholes and the geocellular tank, within the maintenance regime.
Added to report.
4. I note that you are intending to offer the road/box storage tank for adoption by WSCC. Have WSCC agreed to this in principle?
Please clarify.
5. Hydrobrake inspections – to be changed from quarterly to monthly as previously requested.
Updated in report.
6. Permeable paving sweeping – to be changed to twice yearly as previously requested.
Updated in report.
7. Oil interceptors to be inspected monthly as previously requested. Specify proposed actions should an alarm be activated.
Updated in report.

Regards

Paul Cann
Senior Engineer (Drainage & Coastal)





[REDACTED]

Hi Michael,

The information / drawings provided relate to both conditions 9 and 10 see below in red.

Mike Griffin
Principal Infrastructure Engineer

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[REDACTED]

Hi Mike,

Please could you confirm that the following document is the only one that relates to **Condition 10: foul water drainage?**

- Salt Box, Bognor Regis – Foul & Surface Water Drainage Strategy for Landlink Estates, prepared by Hydrock, 29 October 2019, Doc. Ref. SAL-HYD-XX-ZZ-RP-C-0001. Issue 02. This document is more for the new application but can be read in conjunction with the DOC 10

- Salt Box, Bognor Regis – Unit 2 and Access Road Operation and Maintenance Drainage for Landlink Estates, prepared by Hydrock, 29 October 2019, Doc. Ref. SAL-HYD-XX-ZZ-RP-C-0011. Issue No. 02.
- Technical Design Note: Salt Box, Bognor Regis – Unit 2 and Estate Road Drainage Details, prepared by Hydrock, 29 October 2019, Doc. Ref. SAL-HYD-XX-ZZ-RP-C-0010 Rev 03.
- Drawing No. SAL-HYD-00-ZZ-DR-C-7020 Rev. P05 – Access Road Drainage Layout Sheet 1.
- Drawing No. SAL-HYD-00-ZZ-DR-C-7021 Rev. P03 – Access Road Drainage Layout Sheet 2.
- Drawing No. SAL-HYD-00-ZZ-DR-C-7022 Rev. P02 – Access Road Drainage Layout Sheet 3.
- Drawing No. SAL-HYD-00-ZZ-DR-C-7100 Rev. P01 – Drainage Details Sheet 1.
- Drawing No. SAL-HYD-00-ZZ-DR-C-7101 Re. P01 – Drainage Details Sheet 2.
- Drawing No. SAL-HYD-00-ZZ-DR-C-7010 Rev. P02 – Unit 2 Drainage Layout.
- Drawing No. SAL-HYD-00-ZZ-DR-C-7102 Rev. P01 – Drainage Details Sheet 3.
- Drawing No. SAL-HYD-00-ZZ-DR-C-7103 Rev. P02 – Drainage Details Sheet 4.

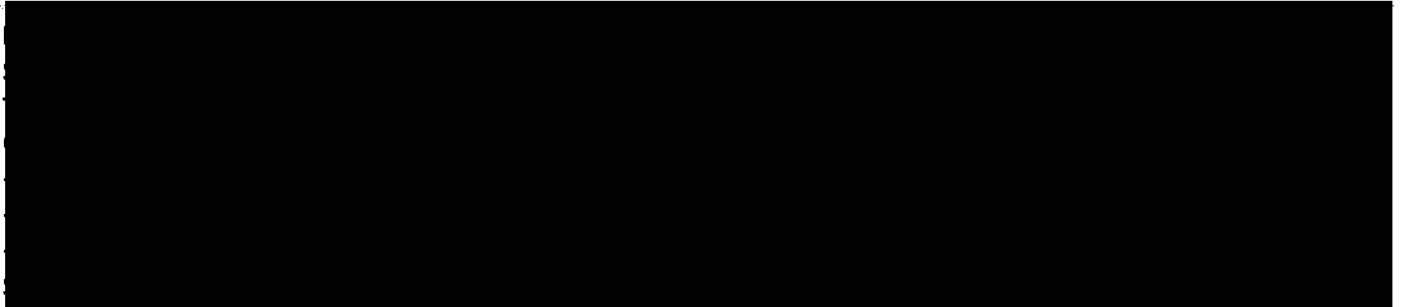
I am assuming that the following documents and plans all relate to **Condition 9: surface water drainage: Am I correct?** Yes

- Salt Box, Bognor Regis – Foul & Surface Water Drainage Strategy for Landlink Estates, prepared by Hydrock, 29 October 2019, Doc. Ref. SAL-HYD-XX-ZZ-RP-C-0001. Issue 02. This document is more for the new application but can be read in conjunction with the DOC 9
- Salt Box, Bognor Regis – Unit 2 and Access Road Operation and Maintenance Drainage for Landlink Estates, prepared by Hydrock, 29 October 2019, Doc. Ref. SAL-HYD-XX-ZZ-RP-C-0011. Issue No. 02.
- Technical Design Note: Salt Box, Bognor Regis – Unit 2 and Estate Road Drainage Details, prepared by Hydrock, 29 October 2019, Doc. Ref. SAL-HYD-XX-ZZ-RP-C-0010 Rev 03.
- Drawing No. SAL-HYD-00-ZZ-DR-C-7020 Rev. P05 – Access Road Drainage Layout Sheet 1.
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- Drawing No. SAL-HYD-00-ZZ-DR-C-7100 Rev. P01 – Drainage Details Sheet 1.
- Drawing No. SAL-HYD-00-ZZ-DR-C-7101 Re. P01 – Drainage Details Sheet 2.
- Drawing No. SAL-HYD-00-ZZ-DR-C-7010 Rev. P02 – Unit 2 Drainage Layout.
- Drawing No. SAL-HYD-00-ZZ-DR-C-7102 Rev. P01 – Drainage Details Sheet 3.
- Drawing No. SAL-HYD-00-ZZ-DR-C-7103 Rev. P02 – Drainage Details Sheet 4.
- Drawing No. SAL-HYD-00-ZZ-DR-C-7110 Rev. P01 – Headwall Details.
- Drawing No. SAL-HYD-00-ZZ-DR-C-7210 Rev. P02 – Unit 2 External Works.

- Drawing No. SAL-HYD-00-ZZ-DR-C-7300 Rev. P01 – External Details.

Kind regards,

Michael



Hi Michael / Roger,

As discussed please find a attached collated information for both DOC and new application. All of this information has been issued previously and incorporate both Laura's and Roger's comment. For clarity and ease of reference we have issued again as WeTransfer against the relevant packages.

Discharge of Conditions 9 and 10 relating to Unit 2 and Access Road

<https://we.tl/t-V1YEJ8knKb>

New planning application

<https://we.tl/t-ooOtmL3lpj>

See below, also for completeness responses to Laura's 12 comments in *RED*

1. *Please provide construction detail drawings of attenuation tanks, permeable paving and outfalls. These should be site specific. Included in DOC submission*
2. *Please provide site specific construction details for the hydrobrakes in unit 2 and the road. Included in DOC submission*
3. *I believe that emergence of water will occur from the ACO drain near the unit 2 access, i.e. on the southern ACO drain between SW-205 and SW-204. Please either model as dummy manhole to prove this doesn't occur or look at revising levels. This has reviewed and the drawings updated.*
4. *Please provide MicroDrainage printouts for surcharged outfall inputs for each calculation set. Calculations appended to new application 'Site Wide Drainage Strategy' for networks 1, 2 and 3, and appended to 'Unit 2 / Access Rd Drainage Strategy' for networks 1 and 2*
5. *Design head is exceeded for unit 2 flow control device. Reviewed and amended.*
6. *Please provide the MicroDrainage printout for modelled dimensions for the attenuation culvert for Network 2. Completed. Appended to 'Site Wide Drainage Strategy' and 'Unit 2 / Access Rd Drainage Strategy' reports.*
7. *You are significantly under-utilising the flow control device for network 2. Reviewed and amended*
8. *There are a couple of small inconsistencies between invert and cover levels on plan and in calculations. These are unlikely to have a significant impact upon results, but may be worth checking if revising calculations. Reviewed and amended*
9. *How are you removing soluble pollutants? See section 2.7 of 'Unit 2 / Access Rd Drainage Strategy' report and section 4.11.1 of 'Site Wide Drainage Strategy' report.*

10. *I would like to see the frequency of checking hydrobrakes increased from quarterly to monthly. I would also like the frequency of sweeping of permeable paving to be twice yearly rather than once or twice. Unit 2 / Access Rd O+M document updated as requested.*
11. *Periodic inspection of oil interceptors is too vague. Please specify frequency. I would recommend these are checked when hydrobrakes are checked. I also want further information included on what maintenance is likely to be required, i.e. emptying disposal of materials etc. Also detail what is required when an alarm goes off. Unit 2 / Access Rd O+M document updated as requested.*
12. *Please state within the maintenance manual how maintenance will be funded. Unit 2 / Access Rd O+M document updated to clarify maintenance responsibilities / funding.*

Mike Griffin
Principal Infrastructure Engineer

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