

From: Anita Gardner
Sent: 30 June 2017 16:39
To: Planning.Responses
Subject: FW: East St/Fitzalan Rd, Littlehampton - Ref. LU/173/16/PL - Surface Water Drainage
Importance: High

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Anita Gardner | Principal Planner, Planning Department, Arun District Council | Location: First Floor, Arun Civic Centre, Maltravers Road,
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Save the environment - think before you print.

From: Mark ABMH [REDACTED]
Sent: 29 June 2017 16:49
To: Paul Cann
[REDACTED]

Subject: RE: East St/Fitzalan Rd, Littlehampton - Ref. LU/173/16/PL - Surface Water Drainage
Importance: High

Paul

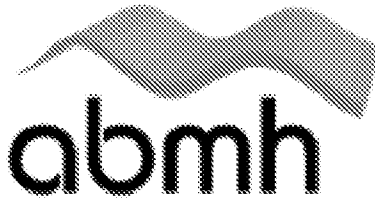
Further to discussion we respond as follows to the issues raised:

1. Please provide a copy of the actual S106 application form sent to Southern Water.
 - a. See attached email to them
2. The S016 approval relates to the means and mode of construction of the connection. Please can you therefore confirm that a capacity check has been undertaken with Southern Water and if so, provide a copy of the results, in order to ensure that there is sufficient capacity in the public combined sewer to accommodate the proposed flows.
 - a. It is our view that as soakaways are not viable on site, a view accepted by yourselves
 - b. We therefore assume that the existing site had a combined discharge from site.

- c. Existing Imp area is 1410 sqm, proposed area is 1610sqm
 - d. Note proposed flows restricted to 5l/s, whereas existing flows had no attenuation at all.
 - e. SW letter states that the flows to the CS are to be agreed with LPA,, and that they are only approving the means and mode of the connection.
 - i. Given the existing arrangements and the proposed attenuated arrangement we do not see how the proposed solution can be viewed as detrimental from the existing situation.
 - ii. The scheme has received planning and as such we note that SW cannot refuse a connection to the sewer system.
 - iii. Furthermore, SW have not raised capacity issues at planning stage or requested a planning condition to that effect within the approval to require the developer to enter into a s98 agreement
 - 1. On this basis I do not feel that a flow capacity check with SW is warranted, and would only potentially prolong and complicate the issue.
 - f. We therefore trust that given the above information that the LPA are able review the above and confirm that we have taken all reasonable steps in line with the actual planning condition 4 and can discharge this aspect.
3. Confirm whether the existing lateral downstream of proposed chamber CS1 has been CCTV surveyed. If so, please provide a copy of the results, in order to confirm that it is structurally fit for purpose.
 - a. CCTV survey attached
 4. The pipe lengths downstream of the hydrobrake chamber up to manhole CS1 require a type Z bedding, due to the risk of root intrusion (add note to drawing).
 - a. Comment added to drawing F2505/02F
 5. Provide details of the non-return valve in manhole SW1, together with detail showing the arrangement within the manhole.
 - a. <http://www.althon.co.uk/products/wastop-check-valves/> - Please refer to website
 6. A connection into manhole SW2 is showing discharging against the flow, please amend. Likewise for manholes SW2.2, SW2.3, SW2.4, SW3, SW7.
 - a. SW2, SW2.2 are catchpits either side of storage thus not affected by the above comment
 - b. SW2.3/2.4/3/7 amended
 - c. Refer to dwg F2505/02F
 7. An overflow pipe is shown on drg. F2505/08) but not shown on the layout drawing. No invert levels specified. Please clarify.
 - a. Detail shown on 08 is a typical detail. Invert/Pipe levels as shown on layout drawing
 - b. Note added to layout drawing 02F that SW2 - no overflow is provided
 8. Provide a copy of the manufacturers technical data sheet for the hydrobrake .
 - a. Attached

Kind Regards

Mark Hobbs BEng(Hons) CEng MICE MCIHT Eur Ing
 ABMH Ltd
 1 The Grove, Felpham, Bognor Regis PO22 7EY



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From: Paul Cann [<mailto:Paul.Cann@arun.gov.uk>]

Sent: 29 June 2017 13:24

To: 'Mark ABMH' [REDACTED]

Cc: Anita Gardner [REDACTED]

Subject: RE: East St/Fitzalan Rd, Littlehampton - Ref. LU/173/16/PL - Surface Water Drainage

Hi Mark

My comments on the proposals are as follows;

1. Please provide a copy of the actual S106 application form sent to Southern Water.
2. The S016 approval relates to the means and mode of construction of the connection. Please can you therefore confirm that a capacity check has been undertaken with Southern Water and if so, provide a copy of the results, in order to ensure that there is sufficient capacity in the public combined sewer to accommodate the proposed flows.
3. Confirm whether the existing lateral downstream of proposed chamber CS1 has been CCTV surveyed. If so, please provide a copy of the results, in order to confirm that it is structurally fit for purpose.
4. The pipe lengths downstream of the hydrobrake chamber up to manhole CS1 require a type Z bedding, due to the risk of root intrusion (add note to drawing).
5. Provide details of the non-return valve in manhole SW1, together with detail showing the arrangement within the manhole.
6. A connection into manhole SW2 is showing discharging against the flow, please amend. Likewise for manholes SW2.2, SW2.3, SW2.4, SW3, SW7.
7. An overflow pipe is shown on drg. F2505/08) but not shown on the layout drawing. No invert levels specified. Please clarify.
8. Provide a copy of the manufacturers technical data sheet for the hydrobrake .

Look forward to hearing from you.

Regards

Paul Cann
Senior Engineer (Drainage & Coastal)

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



From: Mark ABMH [REDACTED]
Sent: 27 June 2017 15:01
To: Paul Cann
[REDACTED]

Subject: RE: East St/Fitzalan Rd, Littlehampton - Ref. LU/173/16/PL - Surface Water Drainage
Importance: High

Paul

Attached as requested

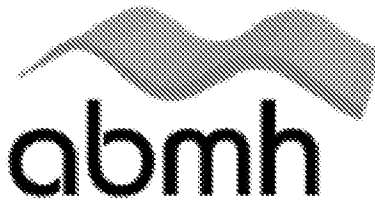
1. Detailed drainage layout.
2. Relevant construction details.
3. Hydraulic calculations to show that the 1 in 100 year storm event + 30% allowance for climate change can be contained within the onsite system.
4. Copy of the S106 Southern Water approval & S185 for clarity

Should you have any queries or comments then please do not hesitate to contact me directly

Thank you

Kind Regards

Mark Hobbs BEng(Hons) CEng MICE MCIHT Eur Ing
ABMH Ltd
1 The Grove, Felpham, Bognor Regis PO22 7EY
[REDACTED]



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From: Paul Cann [<mailto:Paul.Cann@arun.gov.uk>]
Sent: 27 June 2017 14:24

To: 'John Whittle' [REDACTED]

Subject: RE: East St/Fitzalan Rd, Littlehampton - Ref. LU/173/16/PL - Surface Water Drainage

John

Please provide the following for approval based upon the proposed connection to the public combined sewer;

1. Detailed drainage layout.
2. Relevant construction details.
3. Hydraulic calculations to show that the 1 in 100 year storm event + 30% allowance for climate change can be contained within the onsite system.
4. Copy of the S106 application made to Southern Water.

Regards

Paul Cann
Senior Engineer (Drainage & Coastal)

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From: John Whittle [REDACTED]

Sent: 21 June 2017 12:03

To: Paul Cann

Subject: East St/Fitzalan Rd, Littlehampton - Ref. LU/173/16/PL - Surface Water Drainage

FAO Paul Cann - Senior Engineer (Drainage & Coastal) Arun District Council

cc Anita Gardner – Principal Planner, Arun District Council
Paul Cleare – Churchill Retirement Living
Ben Hatt – Planning Issues
Mark Hobbs – ABMH

Our Ref. JHW/jw/CCL02814.030

Dear Mr Paul Cann,

Thank you for your e-mail received yesterday. I clarify the matters raised below.

1. Foundation Constraints

Strip foundations have been designed for the proposed development. A copy of Drg No. L00978-101 C01 Foundation Layout Plan by Scott White & Hookins is attached for your information. Piled foundations are not proposed. Such piling works would be significantly constrained by the (protected) trees at the site and other access issues.

Section 7.10 of CIRIA C574:2001 recommends in areas of low density chalk (or where chalk density is not known), *"...soakaways should be sited at least 10 m away from any foundations"* (underline added). A copy of the relevant page from this document is attached. The assessment of ground support requirements is site-specific and highly dependent on the ground conditions. At this site, it had been observed that the chalk strata was so weak and friable that it was not possible to recover the necessary samples to measure chalk density by laboratory test methods. However, field assessment was possible, which is indicative of low density chalk. Such low density chalk is susceptible to softening and disturbance if exposed to water. Such risk of disturbance and strength reduction/foundation settlements are in addition to the subsidence risks relating to the initiation of chalk dissolution/opening up of existing dissolution features.

It is acknowledged that the site area is classified by the British Geological Survey (BGS) as a "very low" area in relation to risks and possible dissolution features. However, it must be noted that this is a generalised database and not necessarily precise on a small site area. An increase in risk by only one category is necessary for soakaway drainage to be entirely precluded by the BGS advice. Hence, our assessment, as above, is compatible with the BGS risk database.

We concur that the crane foundation is associated with temporary works (notwithstanding, crane is associated with the most critical/sensitive foundation within the development). It is acknowledged that ground stability/support issues might be addressed by a delay in drainage construction in the area or the site required for crane support. Hence, we have removed the crane structures from the attached Figure S-2: Soakaways and Foundation Constraints.

However, omission of the crane base from consideration does not provide any additional areas for soakaways/water infiltration, as shown on Figure S-2. In particular, it is noted that the Grade II Listed boundary wall foundations also require continued support.

The foregoing details were not included in our previous reports, as soakaway drainage was not considered viable nor recommended.

As apparent from the above foundation constraints (and with reference to Figure S-2), the use of soakaways is effectively precluded.

2. Constraints Relating to Ground Conditions

As detailed in our reports and e-mail issued on 23 May 2017, it is evident that the ground conditions comprise very low permeability superficial deposits that extend to variable depths (as recorded between 1.8 m to in excess of 5 m) and underlain by weathered chalk strata (Grade Dm). Groundwater is recorded at 4 m depth (summer conditions). To include an allowance for potential winter groundwater conditions, a characteristic groundwater level at 3 m depth is recommended.

In view of the recorded ground conditions, as above, it is evident that water percolation into chalk strata can only be relied upon over a limited depth range (200 mm), namely between 1.8 m and 2 m depth (to maintain 1 m unsaturated zone below the base of soakaways and the characteristic groundwater level). Such a limited infiltration zone would severely constrain soakway design.

As shown in our Figure S-3, only a very limited area of the site is provided where chalk strata are present above the characteristic groundwater level and where the 200 mm thick infiltration zone is provided. Such a limited volume of suitable strata is considered not to provide a reliable soakaway solution over the design life of the proposed development.

It is noted that most of this area lies directly below the proposed building and within the designated tree protection zones; none of this area of suitable strata is more than 5 m from the proposed building foundations.

As apparent from the above issues relating to ground conditions (and with reference to Figure S-3), the use of soakaways is effectively precluded.

3. Southern Water Correspondence

Attached, is a copy of the letter from Southern Water dated 6 April 2017 and addressed to ABMH. It is noted this letter indicates approval in principal of a connection to the public combined sewer.

We trust the above details clarify the matters raised such that the proposed surfacewater drainage scheme may now be accepted.

Yours sincerely

John H Whittle

PS. Your reference to plant on site appears to relate to drilling equipment in use for the installation of the groundsource heat pump systems. We are not aware of any piling works, and the foundation design, as provided, is not compatible with piling.

From: Paul Cann [REDACTED]
Sent: 20 June 2017 12:24
To: John Whittle

Subject: RE: East St/Fitzalan Rd, Littlehampton - Ref. LU/173/16/PL - Surface Water Drainage

John

With respect to the 10m exclusion zone, Ciria C574 (clause 7.8.3) refers to 'shallow' foundations and a soakaway distance range of between 5 and 10 metres. Please also note that this particular locality is not a known area of dissolution issues. Known dissolution issues in this district are generally just north of the A27 trunk road.

Bearing in mind the above and noting that piling equipment has been seen on site, please could you provide details of the proposed foundations and explain why a 5m distance cannot be applied in this instance. Please also revise your drawing to identify available areas for soakage based upon the 5m distance. The crane platform is temporary, so should not be included as part of the exclusion zone, except where other exclusion zones overlap it.

I would also be interested to see any correspondence you have had with Southern Water in relation to any proposed connection to the public combined sewer.

Regards

Paul Cann
Senior Engineer (Drainage & Coastal)

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