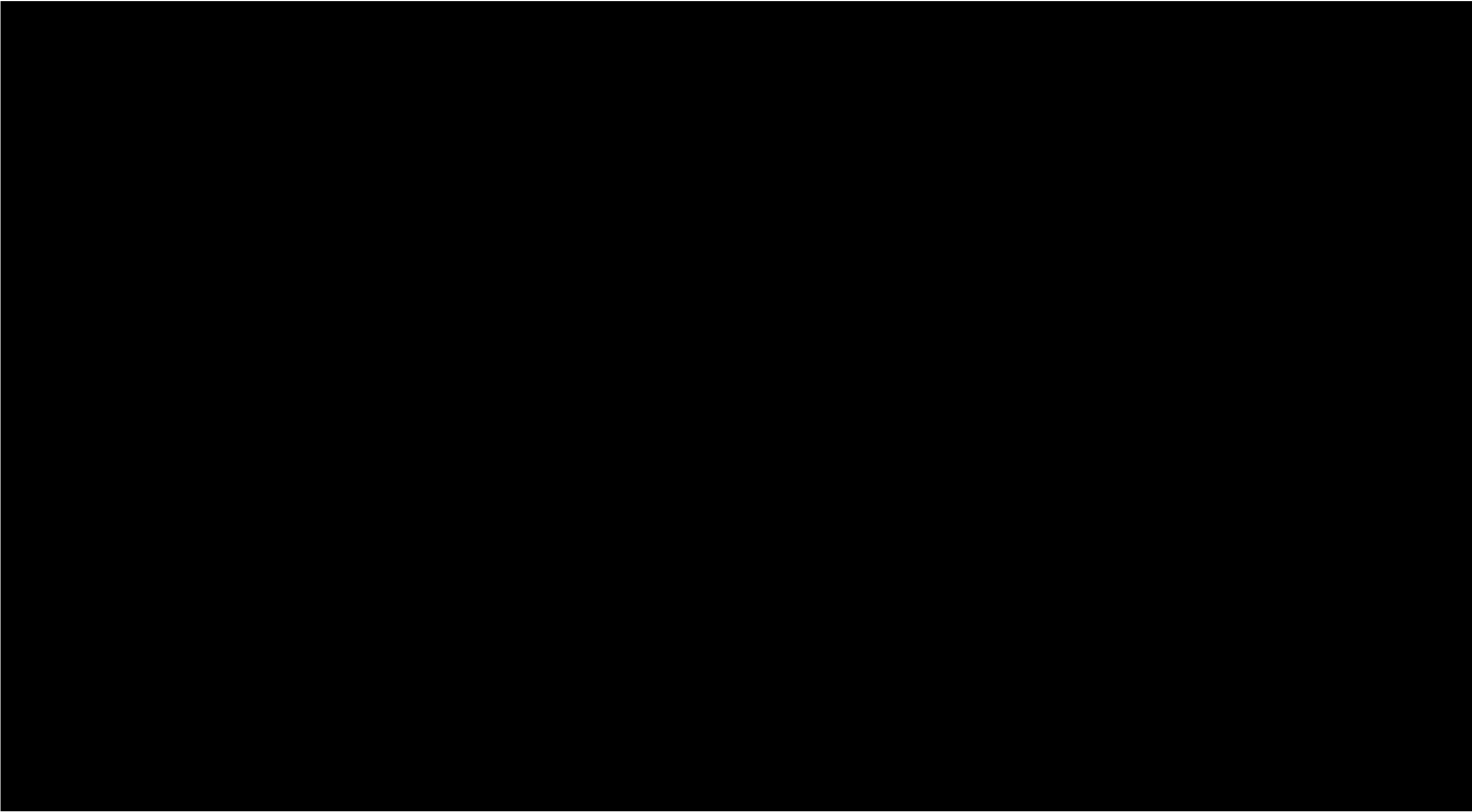




From: Mark ABMH [REDACTED]
Sent: 27 June 2017 15:01
To: Paul Cann
Cc: Anita Gardner; 'Paul Cleare'; ben.hatt@planningissues.co.uk; 'John Whittle'
Subject: RE: East St/Fitzalan Rd, Littlehampton - Ref. LU/173/16/PL - Surface Water Drainage
Importance: High

Paul

Attached as requested

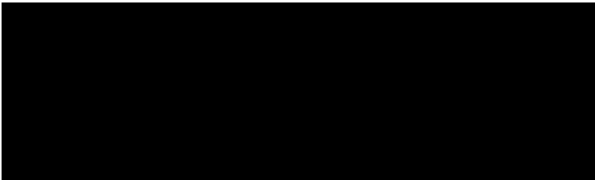
1. Detailed drainage layout.
2. Relevant construction details.
3. Hydraulic calculations to show that the 1 in 100 year storm event + 30% allowance for climate change can be contained within the onsite system.
4. Copy of the S106 Southern Water approval & S185 for clarity

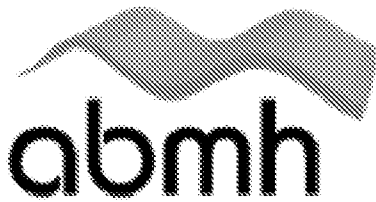
Should you have any queries or comments then please do not hesitate to contact me directly

Thank you

Kind Regards

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





CIVIL AND STRUCTURAL ENGINEERS

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From: Paul Cann [REDACTED]
Sent: 27 June 2017 14:24
To: 'John Whittle' [REDACTED]
Cc: Anita Gardner [REDACTED] Paul Cleare [REDACTED]
[REDACTED] Crossfield Consulting [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)

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

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Save the environment - think before you print.

From: John Whittle [REDACTED]
Sent: 21 June 2017 12:05
To: Paul Cann
Cc: Anita Gardner; Paul Cleare; [REDACTED] Crossfield Consulting
Subject: East St/Fitzalan Rd, Littlehampton - Ref. LU/173/16/PL - Surface Water Drainage

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,

Proposed Development at East St/Fitzalan Rd, Littlehampton
Planning Ref. LU/127/17/DOC
Planning Application Ref. LU/173/16/PL

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
Cc: Anita Gardner; Paul Cleare [REDACTED]
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)

**

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

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DX 57406 Littlehampton

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