

# Housing Development



**Sector:** Housing

**Value:** Approx. £1.8k

**Date:** September 2013

## Services Supplied on this Project:

- A flood risk assessment.
- An explanation on the potential storm water drainage options and justification for selected system, outlining ballpark costs of construction and installation.
- An explanation on the potential Foul drainage options and justification for selected system, outlining ballpark costs of construction and installation.
- Preliminary construction details.
- Preliminary network design in plan drawing format.
- Hydraulic calculations – needed to size the systems.

## To Provide these Services we need as a minimum:

- Address and postcode of the site;
- Any plans that you have of your proposed development;
- Any planning conditions on the site

## The Project

The client, Blackhorse Construction, approached Keyline asking if they knew of a Company that could help them with their drainage design for their Code for Sustainable Homes (CfSH) Level 3 development, as they had been let down by the company that they were previously working with. This was causing delays in the project.

Through the partnerships that the Travis Perkins group had forged through their SBS brand, Keyline engaged the services of Geo-Environmental Sciences, who after being briefed by the branch, proceeded to resolve the client's difficulties.

## Key Considerations

One of the first things that Geo-Environmental asked for was details of whether any infiltration testing had been undertaken. The information provided by the client showed a poor soakage rate, but when Geo-Environmental cross checked this against their geological records, they discovered that if the client had increased the depth of the trial pit by 1.7m they would have been through the superficial layer of clay and into the sandstone in the underlying bedrock and that the infiltration rate would be much improved.

The client redid the infiltration test with our suggested depths and our advice proved to be true - new improved infiltration rates were achieved. As storm drainage is sized from these calculations, this meant that the size and complexity of the drainage solution for storm water was reduced, **immediately saving money.**

Given the issues that the client had encountered with their previous drainage engineer, we undertook a review of the existing drainage plans. During our review of your information, we noted that whilst the architects drawing shows storm and foul drainage in the plan, no pipe size and/or gradients and depths were detailed. In addition the layout also doesn't show any gullies/channels and the level information provide was also limited. This missing detailed information would be required to enable construction of the external works.



Figure 1 - Aerial view of the site

## How did we help

Our Drainage engineers quickly put together a plan of action to get the client's project back on track.

We proposed the following scope of work: *(please turn page)*



Geo-Environmental Sciences

Working in Partnership with:



SUSTAINABLE  
BUILDING  
SOLUTIONS  
Part of the  
TRAVIS PERKINS GROUP

## Scope of work:

- Derive the infiltration rate from the new infiltration test and then calculate a soakaway size to BRE365;
- Complete a Flood Risk Assessment to satisfy the CfSH SUR2 requirements;
- Complete the CfSH SUR1 form using the design calculations;
- Undertake the drainage/levels design and produce a plan depicting the drainage routes, which would be optimised where possible;
- Produce a materials specification and drainage construction details; and
- Approach a pump specialist on your behalf in order to obtain quotations for you to consider.

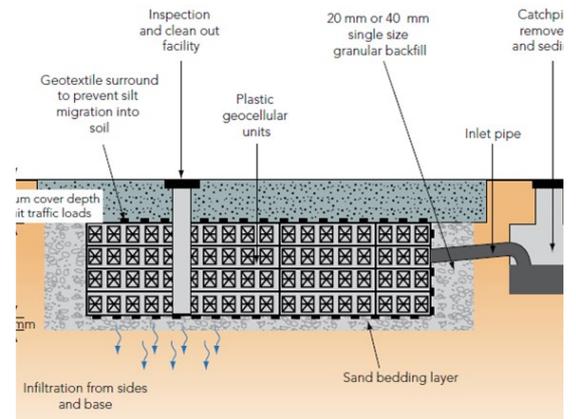


Figure 2 - Attenuation Crates

## Benefits of our involvement

1. From receiving the Purchase Order on the 4th September 2013, all the designs were completed and the report written by the 12th September 2013.
2. Our understanding of geology and the site conditions and the advice we gave on increasing the depth of the trenches for the infiltration test, ultimately reduced the sizing of the soakaways, saving the client money.
3. By reviewing the client's drainage designs, we were able to identify inconsistencies in the design that would have prevented them from achieving CfSH Level 3, which would have delayed the project.
4. Our report provided the client with a fully sized and costed SuDS system for handling storm water and a system for handling the foul water, as well as detailing where those systems would be situated on the site.
5. Utilising the strengths of Keyline we were also able to provide details and Keyline product codes, for all of the products that they were likely to need for the project, making it easier to order the products for the drainage construction.
6. The client would not have been able to have got this project back on-track if it had not been for the SuDS design services that Keyline are now able to provide.

# Stormwater Management

