Bognor Regis Sports Centre, West Sussex

SuDS used

- Filter drain
- Porous pavement
- Infiltration trench

Benefits

- Plate infiltration and attenuation reduce flood risk and promote groundwater recharge.

1. Location

Bognor Regis Community College, Pevensey Road, Bognor Regis, West Sussex, PO21 5LH.

2. Description

A sports centre, synthetic sports pitches, a multi-use games area and parking for 136 cars. Total site area approximately 2ha.

3. Main SuDS components used

- Filter drain
- Porous pavement
- Infiltration trench

Porous block paving used in the roads and car parking areas, allowing blanket infiltration. An infiltration trench accepting the pitch drainage.

4. How it works

The roof of the Sports Centre and the paved areas drain to the porous carpark. This attenuates the flow and allows blanket infiltration into the sub-grade. The porous carpark and sports pitch drainage are connected to an infiltration trench running down the side of the road. During heavy rain, excess flows are stored in the pitch underdrains and the carpark sub-base.

5. Specific project details

Bognor Regis Sports Centre is a project with a capital value of £2.5 to £3M, and is partially funded by a Lottery grant. The sports pitches are revenue earning, and are required to remain flood-free at all times. The sports centre is owned and operated by West Sussex County Council.

The sewerage undertaker, Southern Water, imposed a limiting discharge from the site of 7l/s into the public sewer. This meant that the runoff from the site had to be attenuated from a potential flow of 280l/s to 7l/s. At the detailed planning stage, the connection to the surface water sewer was removed due to concerns about flooding in the adopted system downstream.

Cost estimates were produced for several attenuation options. A porous carpark with the sub-base providing the attenuation was found to be the best solution, even taking into account the increased maintenance and vacuum sweeping costs. The final design was a carpark acting as a blanket infiltration device and providing attenuation at the same time. Additional storage was provided in the sports pitch underdrainage, and additional infiltration offered by the infiltration trench.

The combination of plate infiltration and attenuation required a great deal of engineering judgement, not least because the soil is of low permeability. Although the designers were confident in the proposed solution, they would have found a reference document useful in helping to persuade other parties to have confidence in the design.

6. Design & construction

Design of Bognor Regis Sports Centre began in 1998, and construction was completed in the summer of 1999. The drainage system has performed satisfactorily since completion.

Although no monitoring has been incorporated into the system at present, West Sussex County Council intends to implement a long term monitoring programme.

7. Benefits & challenges

7.1. Benefits

Reduced flood risk. Plate infiltration and attenuation reduce the flood risk and promote groundwater recharge.

7.2. Challenges

Lack of technical guidance. Although the designers had confidence in their designs, other parties would have felt more comfortable if there was a standard to refer to.