ENVIRONMENTAL FLOOD RISK DRAINAGE ECOLOGY

Laurencekirk Station SuDS Design

Corus Rail / Galliford Try

Project aims

Drainage Impact Assessment (DIA), outline options and detailed design of a sustainable drainage system (SuDS) to treat and drain runoff for the re-opening of Laurencekirk Station near Aberdeen.

Key aspects of this project included liaison with SEPA and Aberdeenshire Council to obtain approvals and consents for the SuDS scheme.

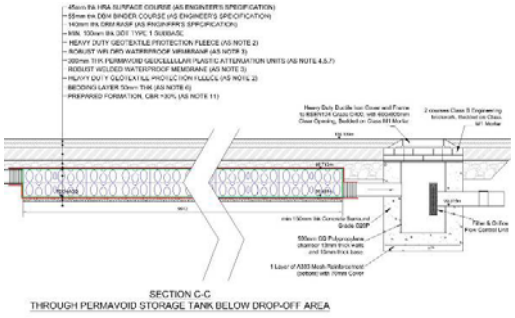
Project summary

The scheme involved the renovation of the existing station buildings, construction of new platforms, new footbridges and reconstruction of the access road. As the site is underlain by rock as shallow depth, infiltration drainage was not viable and there was a preference to achieve a shallow drainage system.

Following completion of the DIA, it was agreed that surface water could be discharged to the culverted watercourse passing through the site and that runoff would be restricted to the pre-development 1 in 2 yr flow rate with flows then attenuated on site.

To retain a shallow drainage and attenuation system, runoff from the platforms and footbridges was directed to shallow granular storage 'tanks' at the end of each platform. Flows were controlled at these tanks and then passed below the railway tracks to flow through a filter drain designed to provide additional treatment and attenuation.

Similarly, runoff from the access road was drained to source control interception channels to provide first phase treatment and then through filter drains to provide second phase treatment. Attenuation was provided by geocellular plastic storage units located at shallow depth below the access road.



SECTION C-C
THROUGH PERMAVOID STORAGE TANK BELOW DROP-OFF AREA

The design and construction of the scheme were achieved to very difficult site constraints. Construction was maintained above the rock stratum, which was only 600mm below ground in many parts of the site.

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