

Protect your drainage system with

The Gully Guard

...and be prepared for the EU Water Framework Directive



Gully Guard is an engineered, patented and sustainable solution to assist in protecting drainage systems from suspended solids, sediment and pollutants from entering into the existing watercourse, avoiding potential large costs and fines.

Gully Guard is a quick, easy to install, reusable, cost effective way to assist in protecting sensitive watercourses as well as reducing overall maintenance costs in gully pot cleansing and associated flash flooding due to “full” gully pots which in effect become inactive.

Gully Guard technical bulletin: Sediment and chemical retention tests

A gully pot is prone to fill up with waste materials and contaminated sediment that can severely limit its ability to prevent flooding. Transportation of typical sediments into the drainage system has the added danger of depositing harmful pollutants into watercourses. Major EU legislation in the form of the “European Water Framework Directive” is driving action to achieve good ecological and chemical status in ALL European waters.

The capability of an installed Gully Guard to assist in protecting the drainage system from both sediment and chemical pollutants while maintaining its function to assist in preventing surface flooding has been proven following **extensive testing by The Department of Civil and Structural Engineering at the University of Sheffield.**

Results

Table 1: Proportion of bulk sediment sample collected at different points during the Gully Guard test with a flume inflow rate of 2.57 l/s and flow rate through the gully pot of 0.73 l/s

| Sediment fraction | Proportion of bulk sample retained |
|-------------------------------|------------------------------------|
| Trapped within Gully Guard | 97.91% |
| Trapped in base of gully pot | 1.92% |
| Passing through the gully pot | 0.17% |

This result confirms the efficiency of the Gully Guard in retaining almost all the sediment that would enter a roadside gully pot during a representative storm event.

Table 2: Mass of sediment and equivalent PAH compounds retained during tests

| Sediment fraction | Mass collected in test (g) note 1 | PAH adsorbed (mg/g) note 2 | Equivalent PAH retained (mg) | Equivalent PAH retained |
|--------------------------|-----------------------------------|----------------------------|------------------------------|-------------------------|
| General sample | – | 0.099 | | – |
| Gully Guard | 2400 | 0.093 | 223 | 97% |
| Base of gully pot | 47 | 0.109 | 5.1 | 2.2% |
| Passed through gully pot | 4.2 | 0.432 | 1.8 | 0.8% |

Notes
 1. Mass of sediment collected in test, based on use of original “general sample”. 2. Total PAH adsorbed to specific sediment fraction. The total per unit mass (mg PAH/g sediment) of PAH compounds adsorbed by the “general sample” and “Gully Guard” are very similar, as expected due to the similarity of their grain size distribution characteristics.

The mass of heavy metals adsorbed by sediment fractions in the Gully Guard flow test is shown in Figure 3

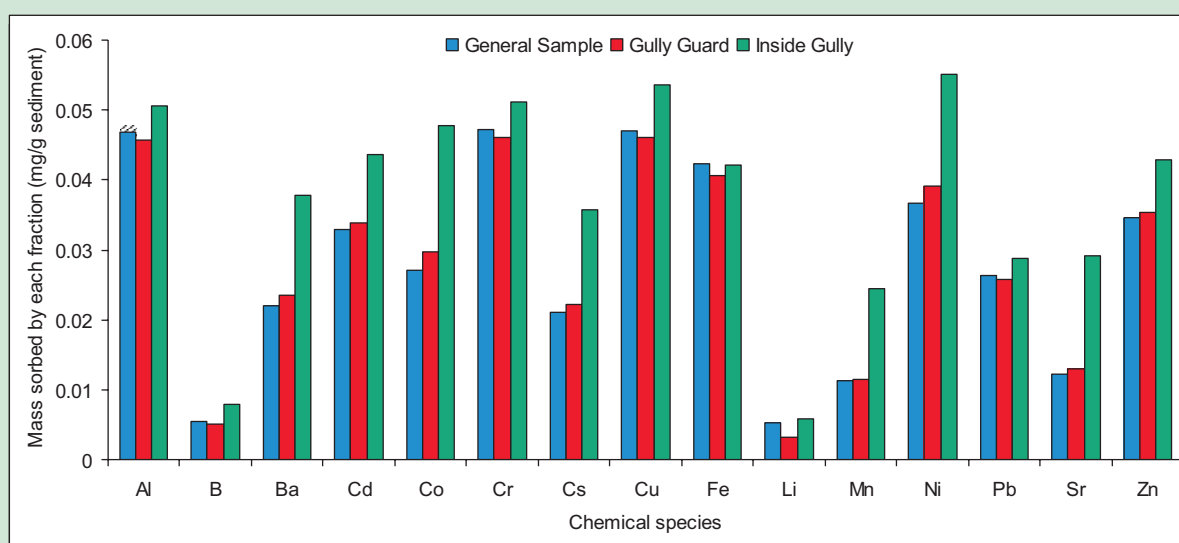


Figure 3. Mass (mg/g sediment) of heavy metals adsorbed by sediment fractions

Conclusion

An installed Gully Guard will trap the majority of the sediment entering a gully pot (see Table 1) thus making it easier to service and maintain whilst significantly reducing the amount of sediment passing through the gully pot into the drainage system and therefore entering the receiving water course. **In these tests 97% of the total sediment mass carried into the gully pot was retained by the product when a Gully Guard was installed.**

The sediment fraction captured by the Gully Guard was the most important and significant overall, in terms of the equivalent total mass of PAH and heavy metal compounds retained.

The Department of Civil and Structural Engineering at the University of Sheffield concluded: “these test results suggest that Gully Guard is very effective in capturing the majority of sediment that may enter a gully pot in a storm event, as well as retaining most of the organic chemicals (represented in this case by 5 PAH compounds) and a wide range of heavy metals and other inorganic chemicals that may adsorb to this fraction from the storm water”.

Full research reports available on request.