New national Infiltration SuDS Map

Dr. Rachel Dearden

The British Geological Survey (BGS) has developed a national Infiltration SuDS Map that shows the likely suitability of the subsurface for the installation of infiltration sustainable drainage systems (SuDS). The new map allows users to determine the properties of the subsurface with respect to potential drainage, ground stability and groundwater vulnerability enabling them to determine whether soakaways, infiltration basins or permeable pavements may be appropriate at a given location.

The BGS began creating the map two years ago in response to drivers such as the Floods and Water Management Act 2010, which includes the provision for the installation of sustainable drainage in place of traditional piped drainage systems. The use of infiltration is prioritised over other sustainable and traditional techniques in current guidance (Approved Document H) and it is likely that the new SuDS National Standards will reflect this hierarchy.

The map comprises 24 individual GIS datasets, which are divided into four thematic sections. Each section has a 'screening layer' providing a spatial overview of the suitability for infiltration and a number of component data layers. These data layers are derived predominantly from BGS datasets and have been reclassified and reattributed to be specifically relevant for SuDS suitability. The four sections of the map and the data considered are listed below:

- Are there any severe constraints that mean an infiltration system should be installed only if the potential for and consequences of flooding and geohazards are known? *Datasets include: Persistent shallow groundwater, soluble rocks, landslide hazards, artificial ground and shallow mining hazards*

- To what extent will the ground drain? *Datasets include: depth to groundwater, superficial deposit permeability, superficial deposit thickness, bedrock permeability and geological indicators of flooding*

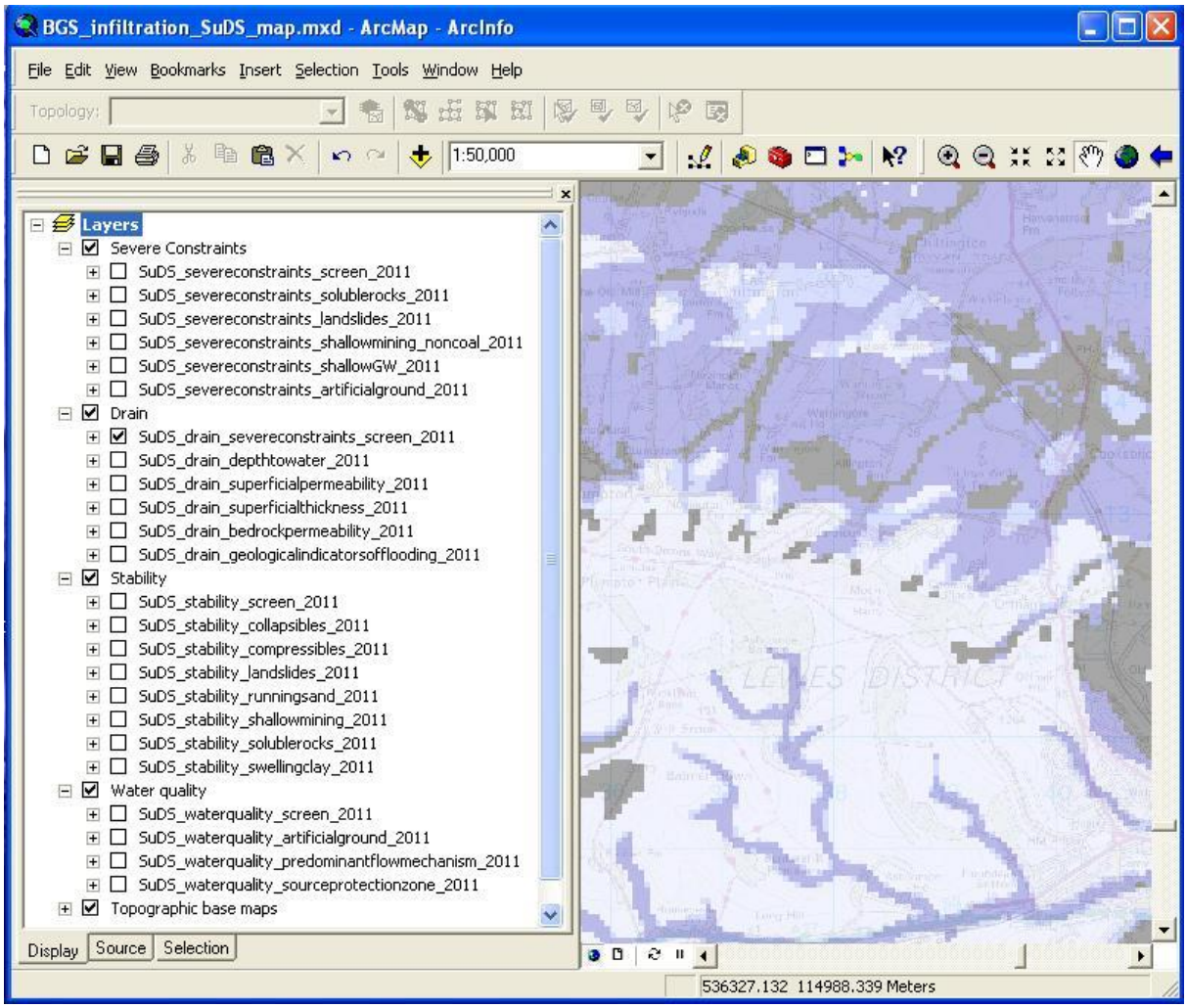
- Will the ground be stable? *Datasets include: soluble rocks, landslides, running sand, collapsible ground, compressible ground, shallow mining hazards, swelling clays*

- Are there any water quality precautions? *Datasets include: artificial ground, subsurface flow mechanism (fracture/intergranular) and the Environment Agency's source protection zones.*

Infiltration is a highly versatile SuDS technique that can be implemented over a wide range of ground conditions provided that the system is designed appropriately. The Infiltration SuDS Map reflects this concept, highlighting the potential for infiltration SuDS not only in free-draining ground, but also in lower permeability deposits where bespoke infiltration SuDS (infiltration basins for example) may be appropriate.

The BGS anticipate that the map will be of value to planners and developers, but also to SuDS approval bodies within local authorities, where it could be used to assess incoming planning proposals. The map will be available as a licensable dataset or as an 'Infiltration to the ground GeoReport' that is available now (http://shop.bgs.ac.uk/georeports/).

Dr. Rachel Dearden, a hydrogeologist at the BGS, has recently been awarded a NERC (Natural Environment Research Council) Knowledge Exchange Fellowship to support drainage professionals over the next three years. If you're interested in getting involved, please get in touch with Rachel, rach1@bgs.ac.uk



The Infiltration SuDS Map in a geographical information system. OS topography © Crown Copyright. All rights reserved. 100017897/2011