British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

Delivering value to the construction industry

Case study: Infiltration SuDS Map

Rachel Dearden

Introduction

STRENGTH

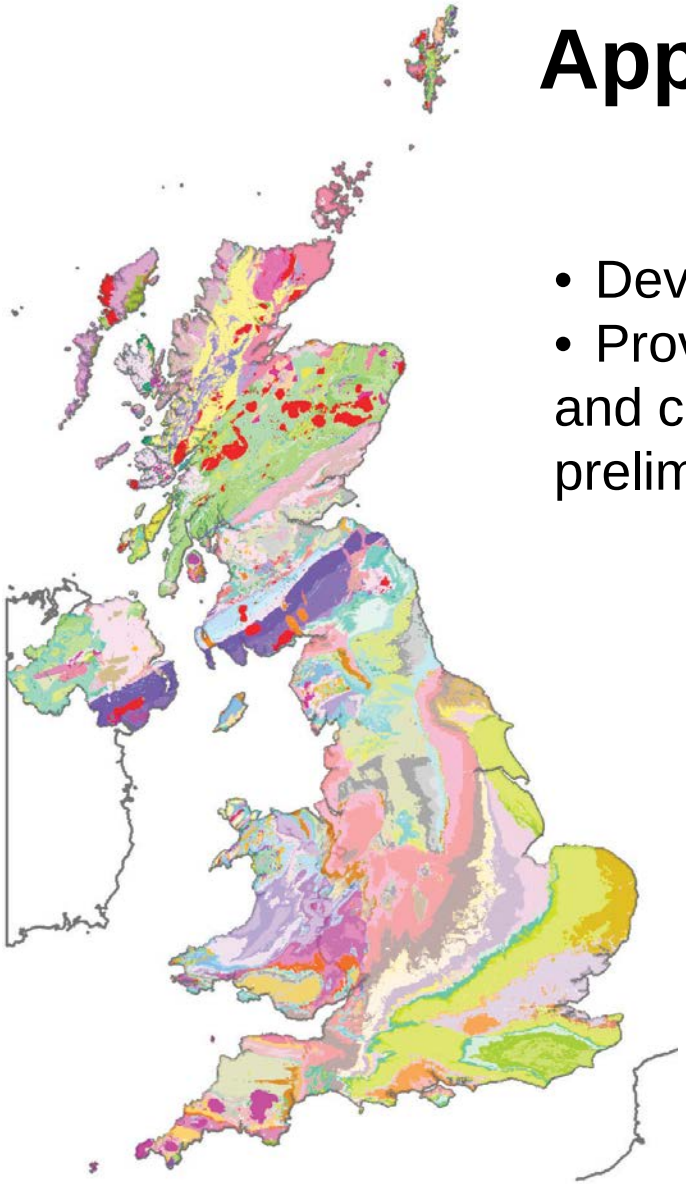
- BGS has a large and varied collection of applied geological maps, many of which could be used by the house-building industry

- In reality, they are rarely used, perhaps because:
  - the industry is unaware
  - the maps don't respond to a specific question
  - they are not necessarily delivered in the right way.

Workshop aim

- To understand how we can better support the house-building industry through development of industry-specific map products
  - Is the data useful?
  - What industry-specific questions can it help to answer?
  - How should it be delivered?

Applied geological maps



- Developed by BGS since ~2000
- Provide an interpretation of the geological map and can be used to help planning and preliminary decision making

- Made ground
- Susceptibility to groundwater flooding
- Superficial deposit permeability
- Superficial deposit thickness
- Bedrock permeability
- Depth to water table
- Geo. indicators of flooding
- Soluble rocks
- Landslides
- Shallow mining (non-coal)
- Collapsible ground
- Compressible ground
- Running sand
- Swelling clays
- Corrosivity
- Excavatability
- Strength

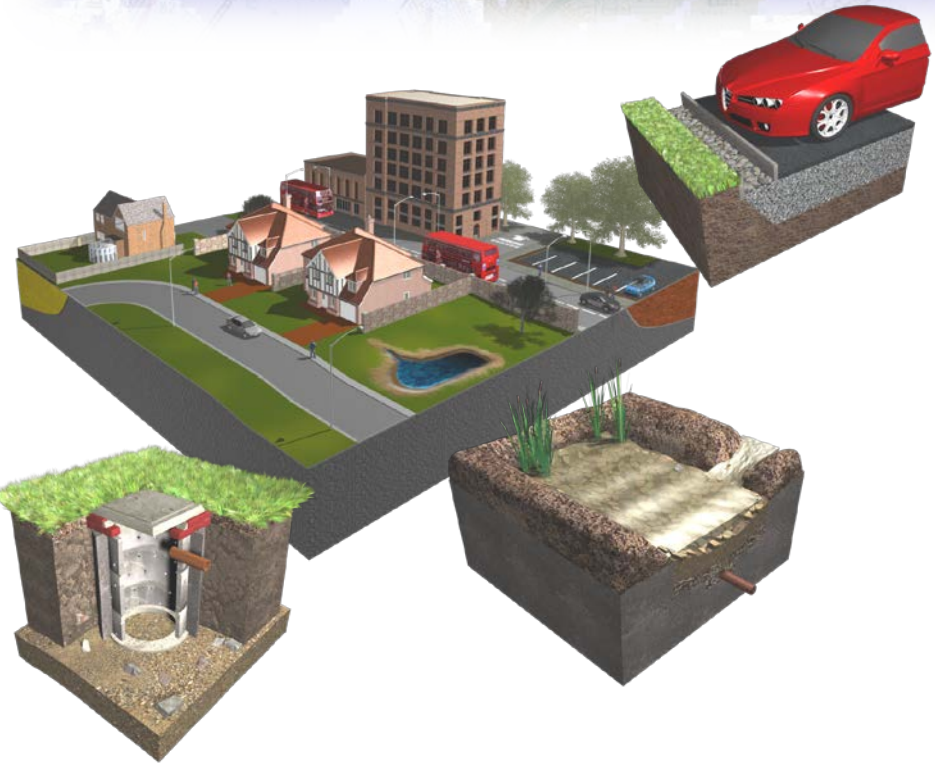
What prompted this workshop?

- Discussions with house-builders/industry professionals
- BGS being keen to ensure that information is used by the industry
- Funding (for this workshop) from the NERC Environmental Data call

- Realisation that data is more useful when it attempts to answer specific industry questions, e.g. Infiltration SuDS Map

Infiltration SuDS Map

Infiltration SuDS Map



- Driver:

Floods and Water Management Act 2010

- Question:

Where are the ground conditions suitable for infiltration SuDS?

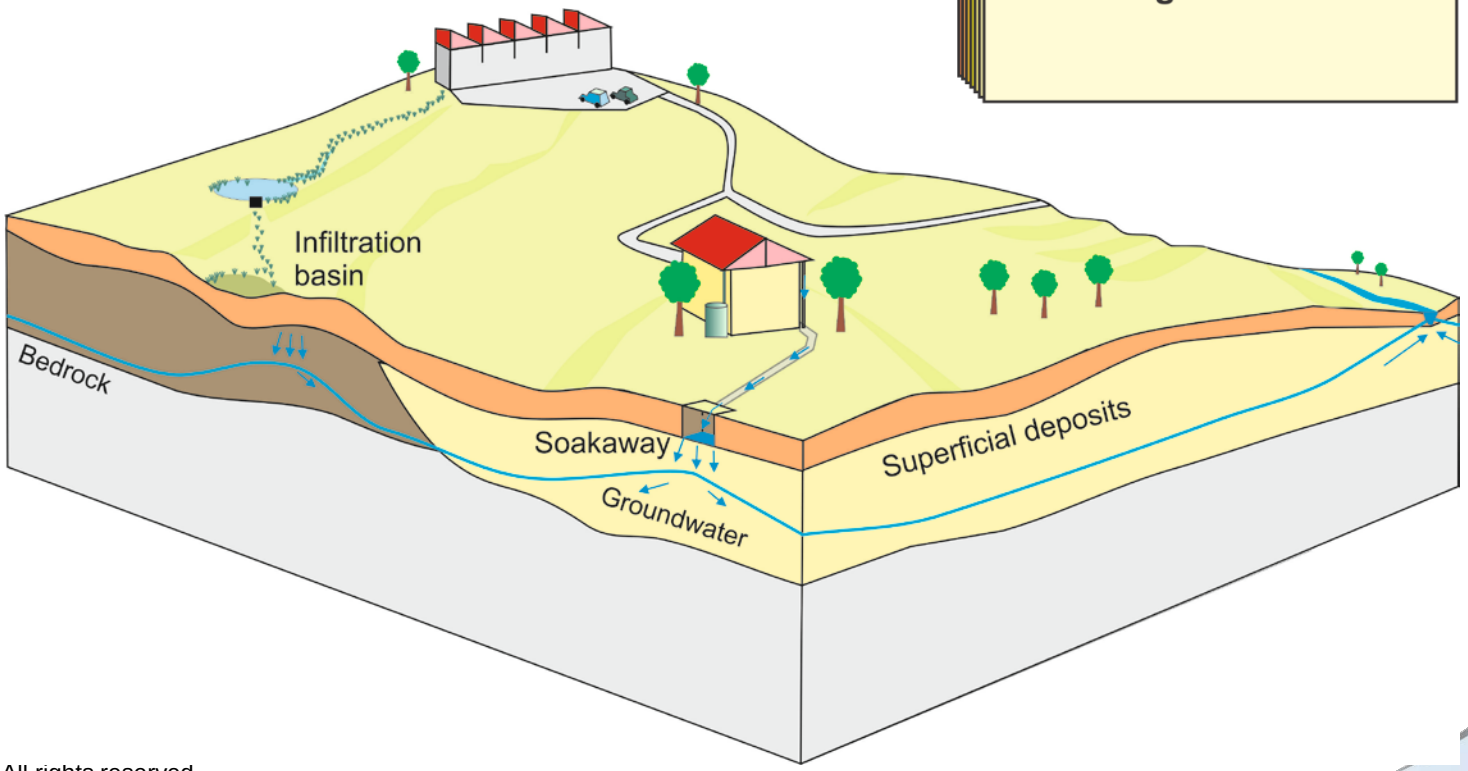
- Answer:

Develop a national map that provides the information necessary to assess the suitability of the subsurface for infiltration SuDS

What information was required?

1) Are there any significant constraints that should be considered?

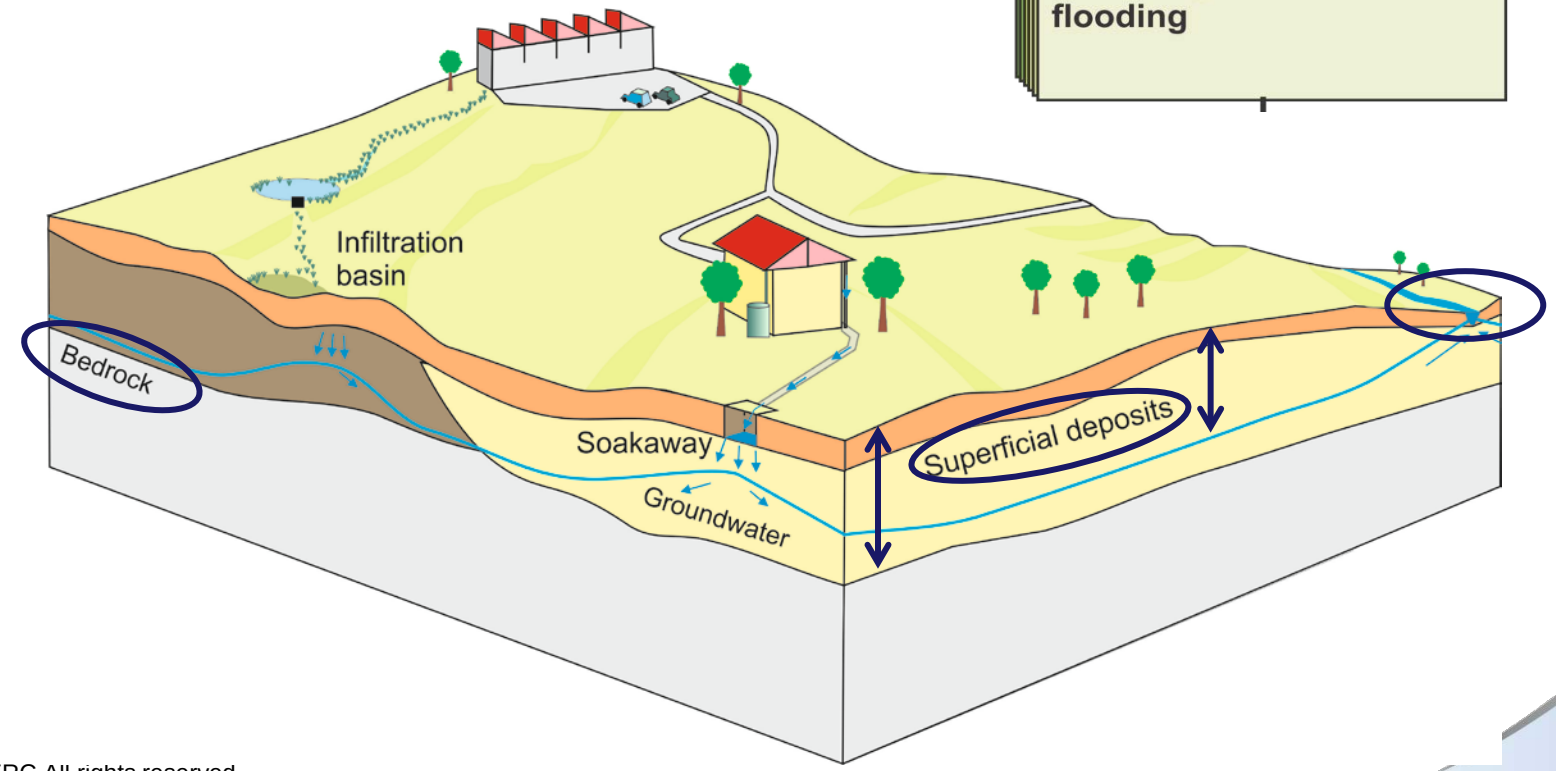
- Soluble rocks
- Landslide hazards
- Shallow mining
- Shallow groundwater
- Made ground



What information was required?

2) What is the drainage potential of the ground?

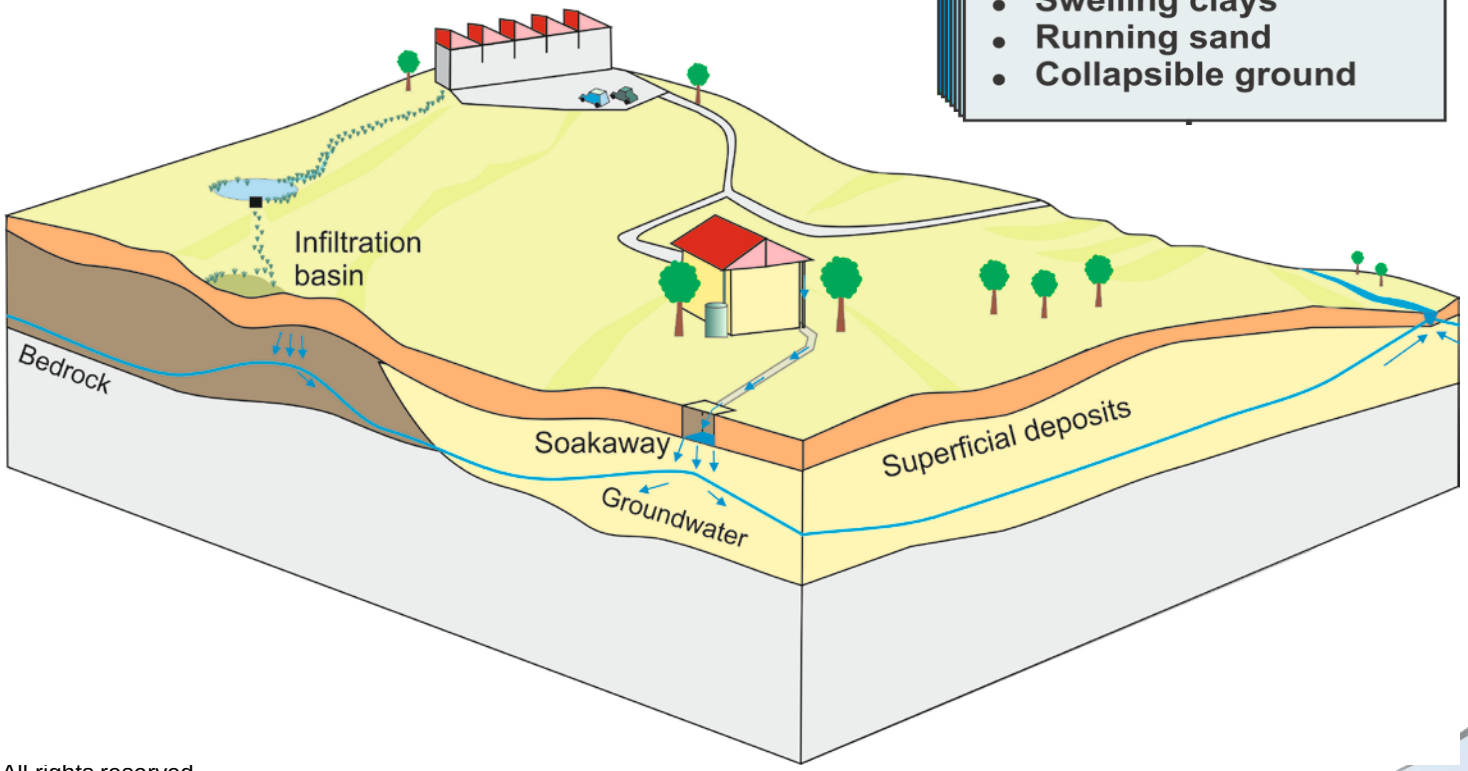
- Depth to water table
- Superficial permeability
- Superficial thickness
- Bedrock permeability
- Geological indicators of flooding



What information was required?

3) Are there any ground stability considerations?

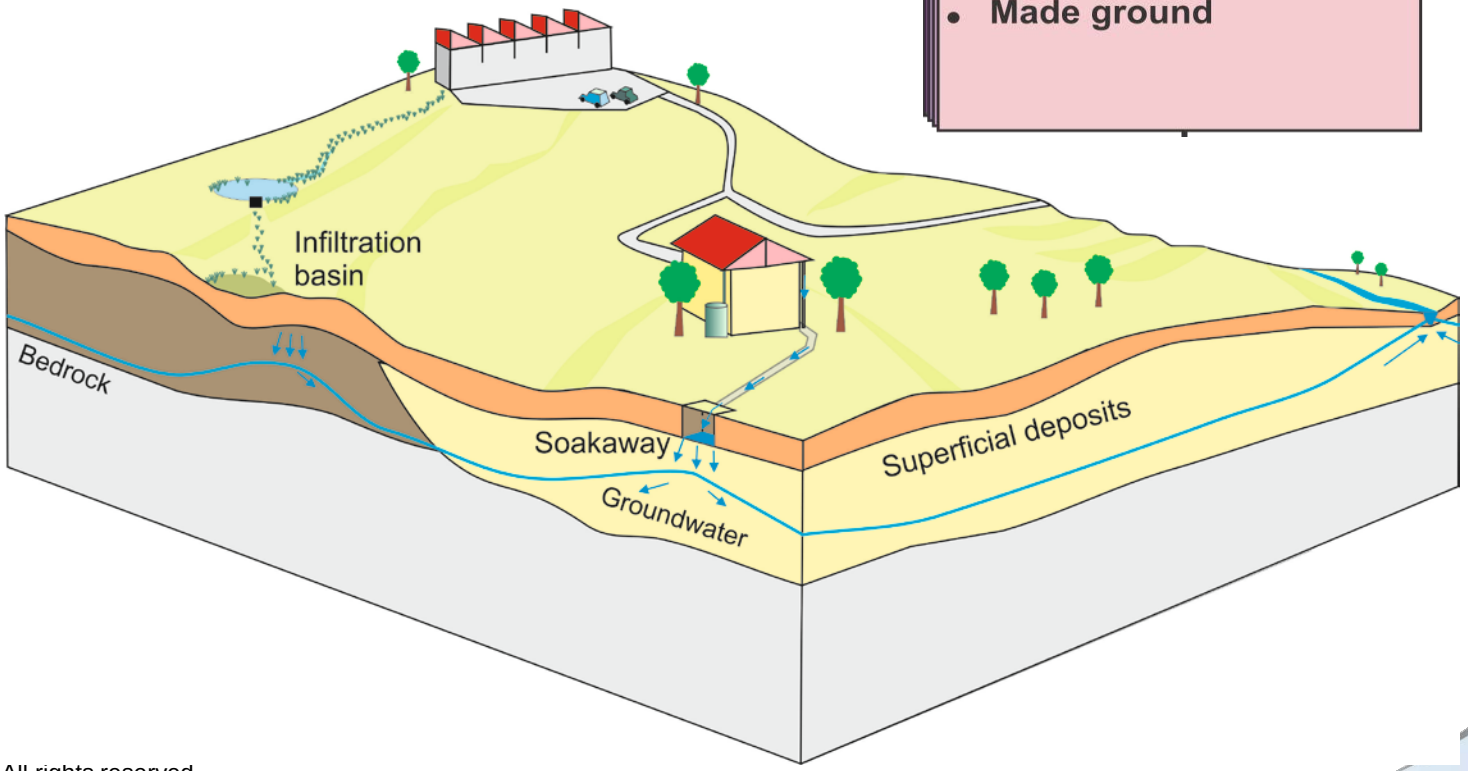
- Soluble rocks
- Landslide hazards
- Mining hazards
- Compressible ground
- Swelling clays
- Running sand
- Collapsible ground



What information was required?

4) Is groundwater likely to be susceptible to a deterioration in quality?

- Groundwater Source Protection zones
- Aquifer predominant flow mechanism
- Made ground



Applying BGS ground information

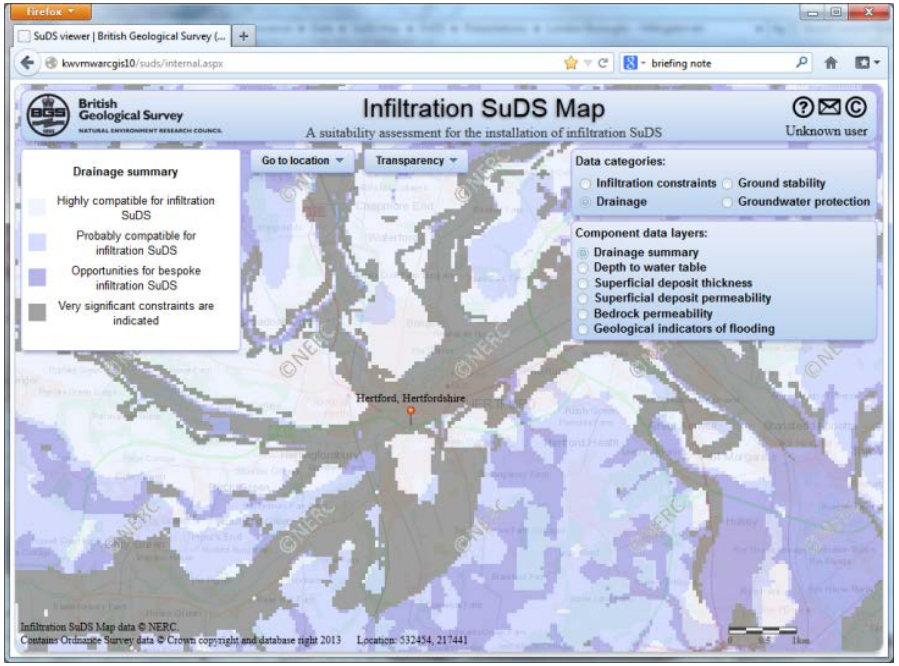
- Soluble rocks
- Landslide hazards
- Shallow mining
- Shallow groundwater
- Made ground

- Depth to water table
- Superficial permeability
- Superficial thickness
- Bedrock permeability
- Geological indicators of flooding

- Soluble rocks
- Landslide hazards
- Mining hazards
- Compressible ground
- Swelling clays
- Running sand
- Collapsible ground

- Groundwater Source Protection zones
- Aquifer predominant flow mechanism
- Made ground

- BGS already had information relating to all of these considerations
- In total, 20 applied geological maps/models were used to create the Infiltration SuDS Map



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- Soluble rock hazards

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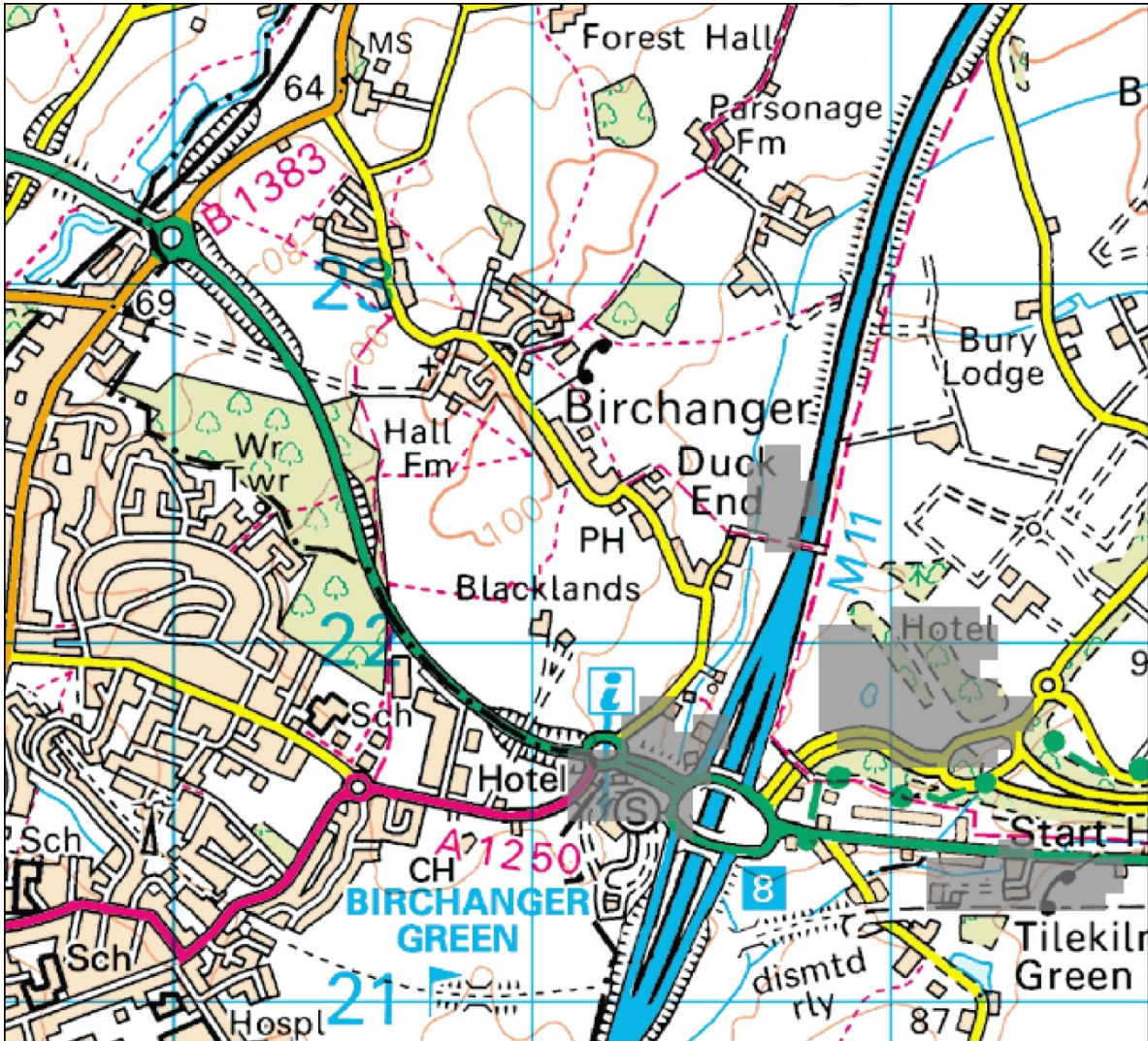

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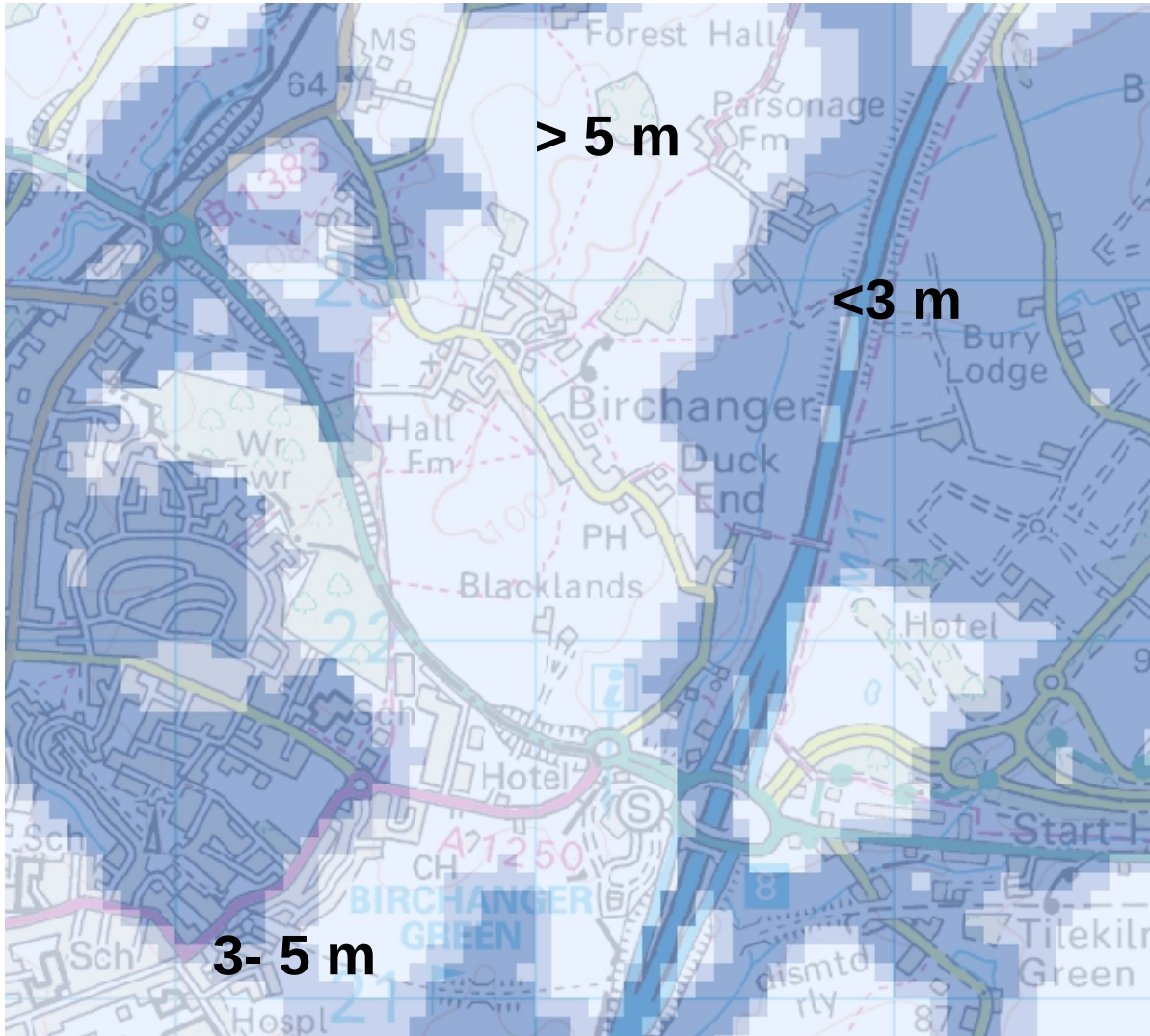
- Depth to water table



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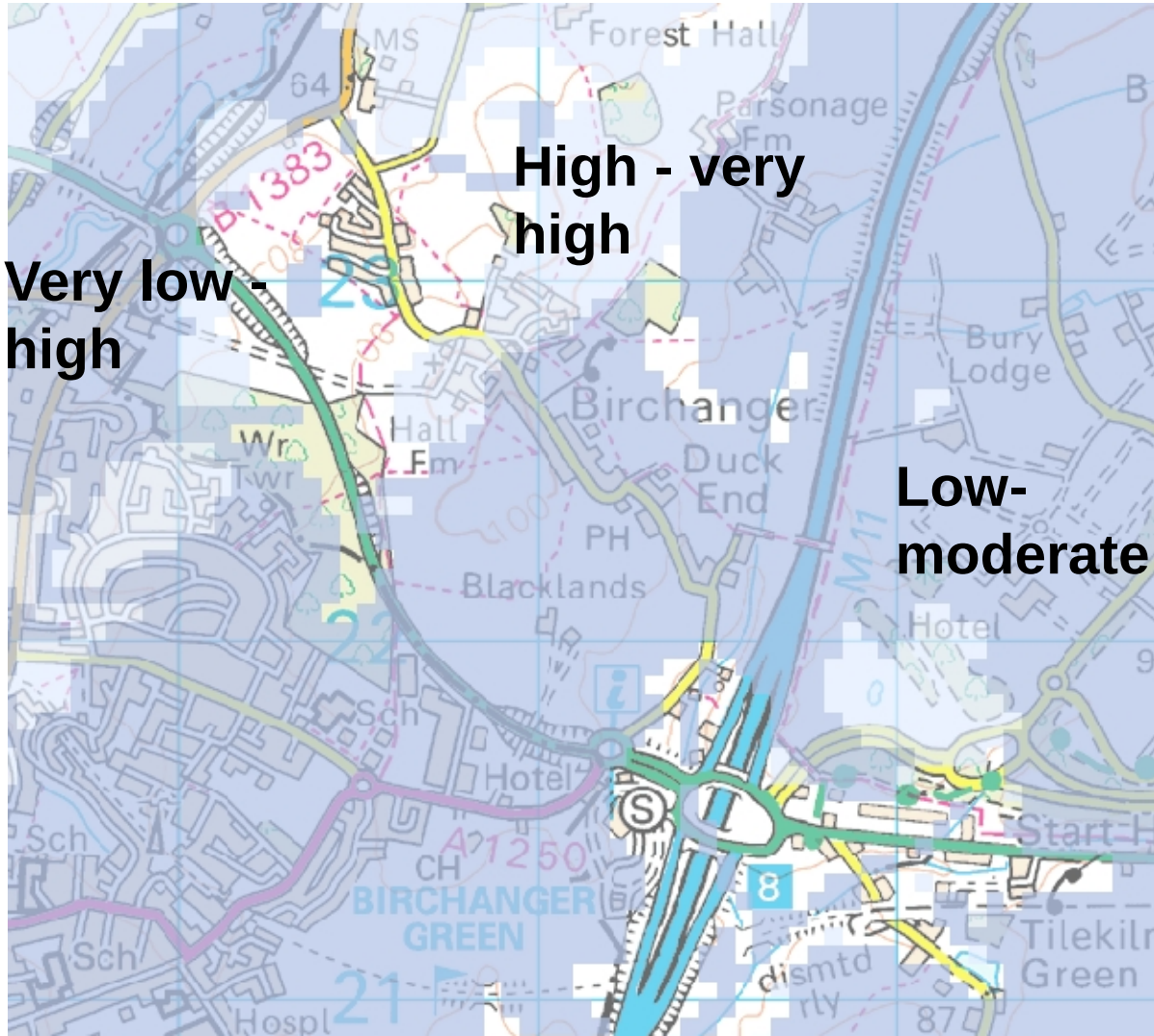
- Superficial deposit permeability



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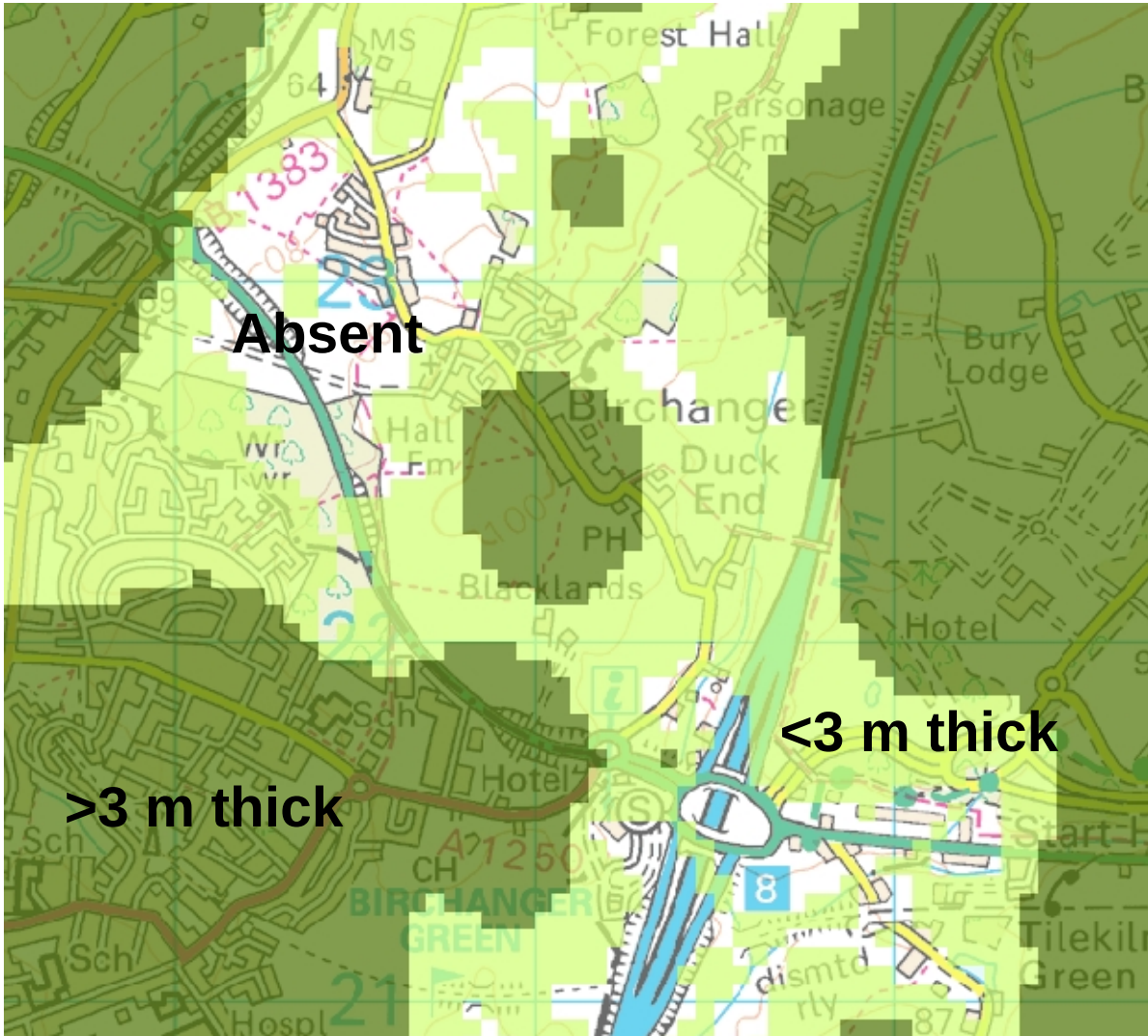

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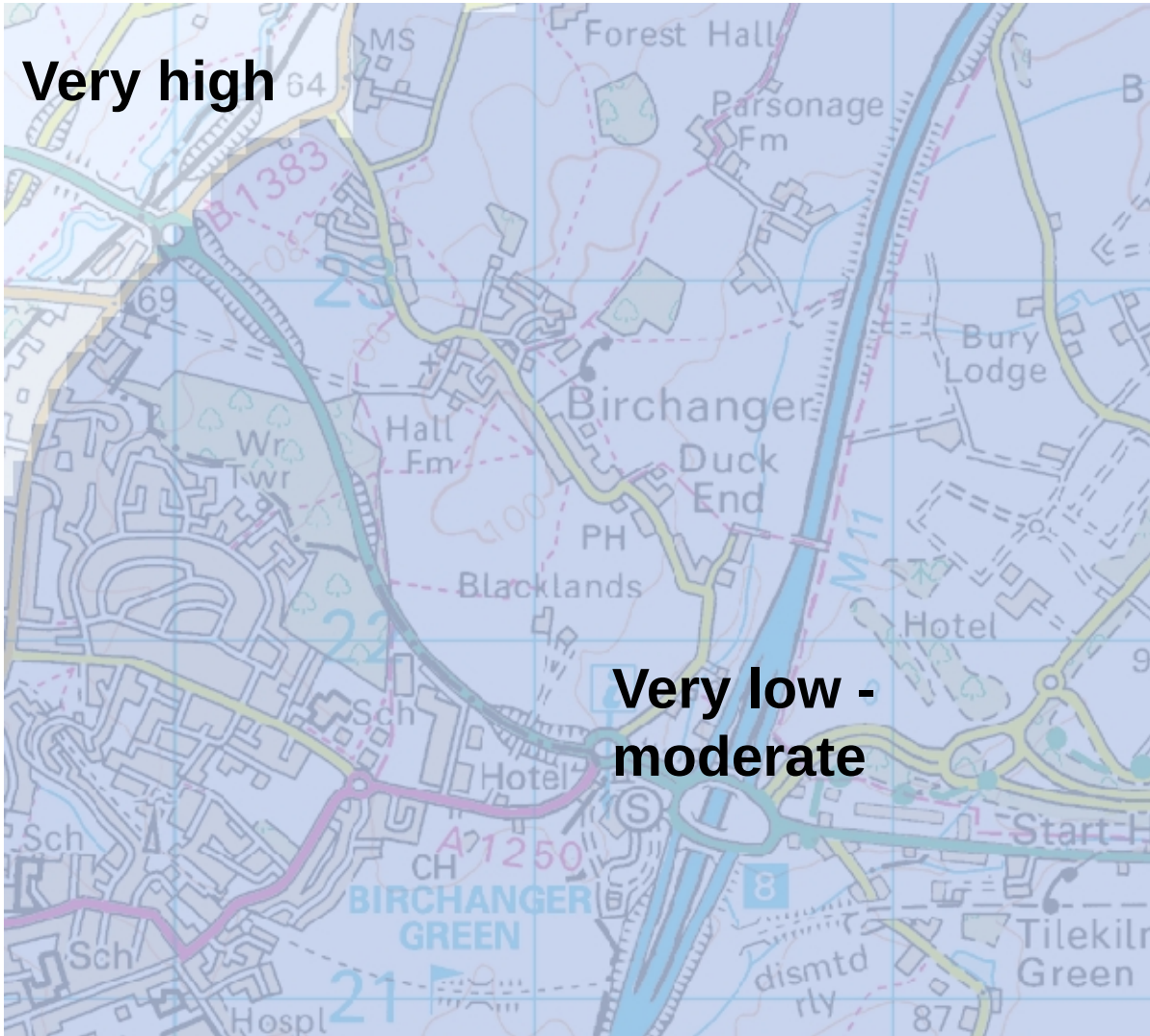

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- Groundwater Source Protection zones
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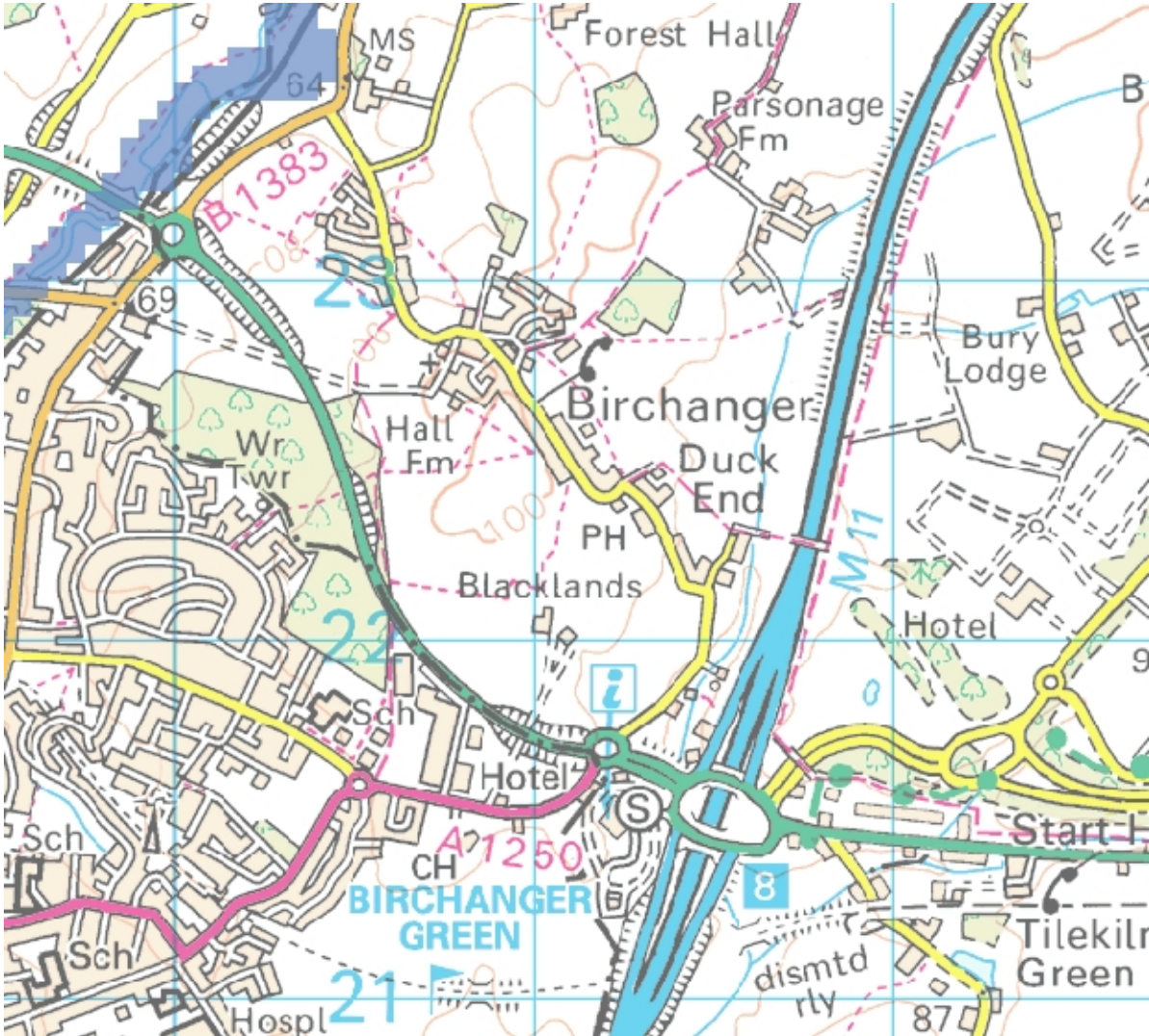
- Floodplains



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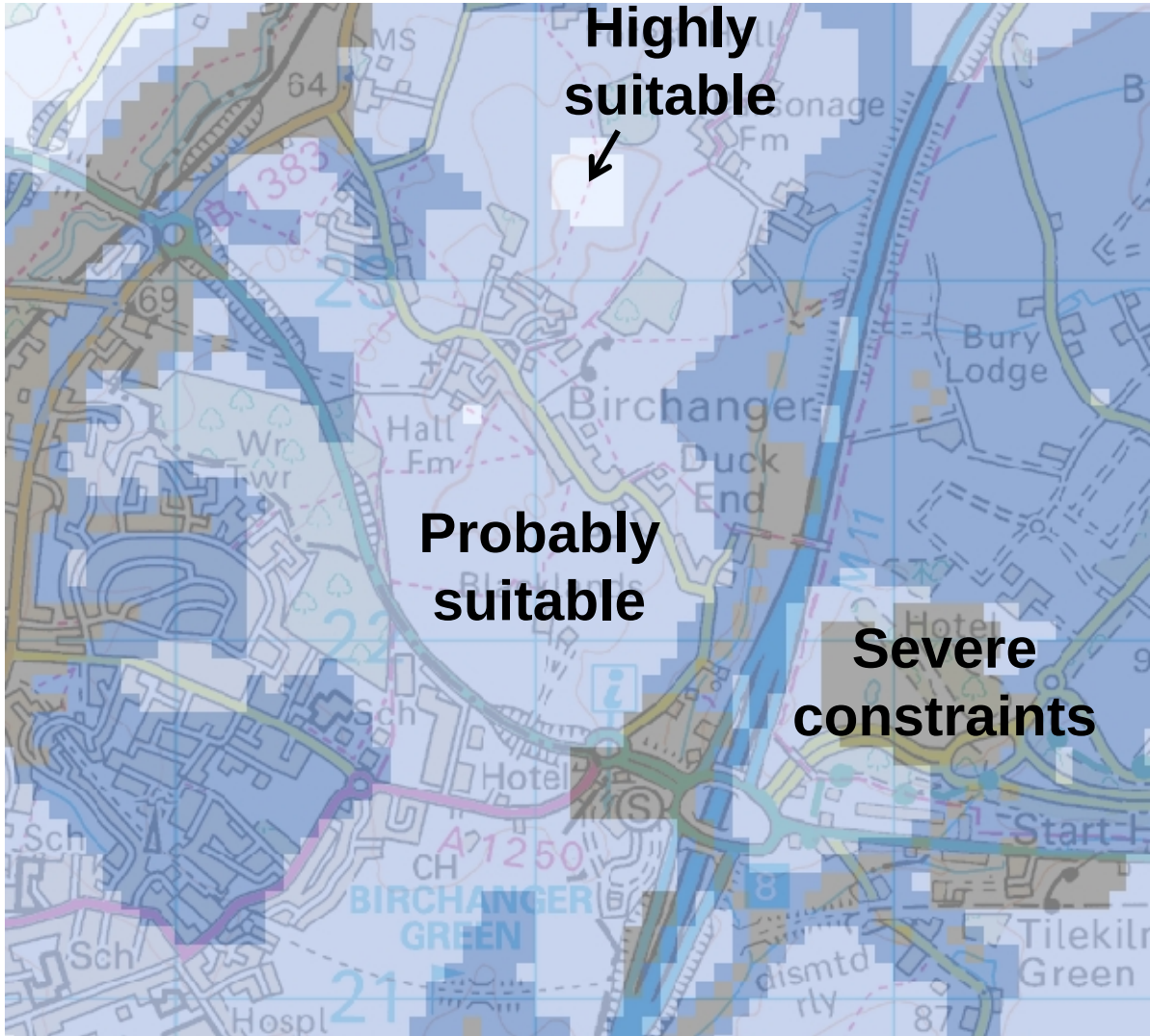
- Summary



Feedback from users

Infiltration SuDS Map is used by >20 councils, consultancies, regulators, individuals and a number of water companies.

How do people use it?

Shank's Consulting: To assess the ground to increase understanding of site conditions during planning investigations.

United Utilities: To pre-select sites that are likely to be appropriate for infiltration SuDS, avoiding the need for expensive site investigations in places where infiltration is unlikely to be appropriate.

Mayer Brown Consultancy: To identify potential ground stability hazards that otherwise may not have been considered.

Today provides an opportunity for you to view and talk about BGS data and to help us create products that will help you in the future.

Funding for businesses

- **Technology Strategy Board** (TSB) are running a call for proposals:

Solving business problems with environmental data competition

- Funds 12 month feasibility projects costing £50-200K for new ideas/ways to use environmental data in business.
- **Led by business**
- Consortia typically include an end user, a developer and a data provider