Cadcorp/BGS

Housing Management- Does the Ground Matter?

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British Geological Survey

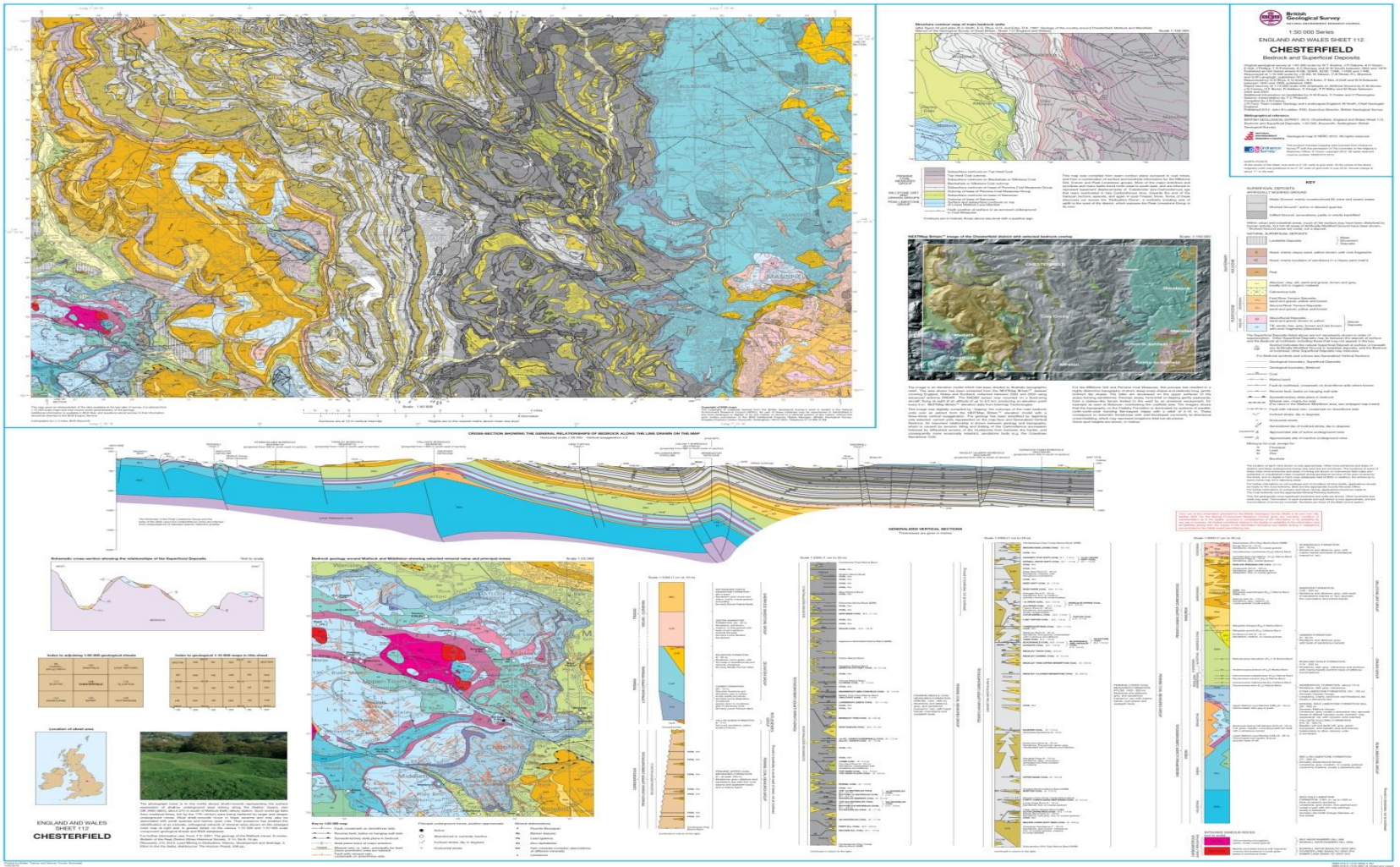
- **Founded in 1835**
- **Part of the Natural Environment Research Council (NERC)**
- **Funded primarily by Government, but have significant external income through commissioned research**
- **Offices at Nottingham (Keyworth), Wallingford, Edinburgh and Cardiff**

- *"UK's premier provider of objective and authoritative geoscientific data, information and knowledge for wealth creation, sustainable use of natural resources, reducing risk and living with the impacts of climate change"*

Research highlights

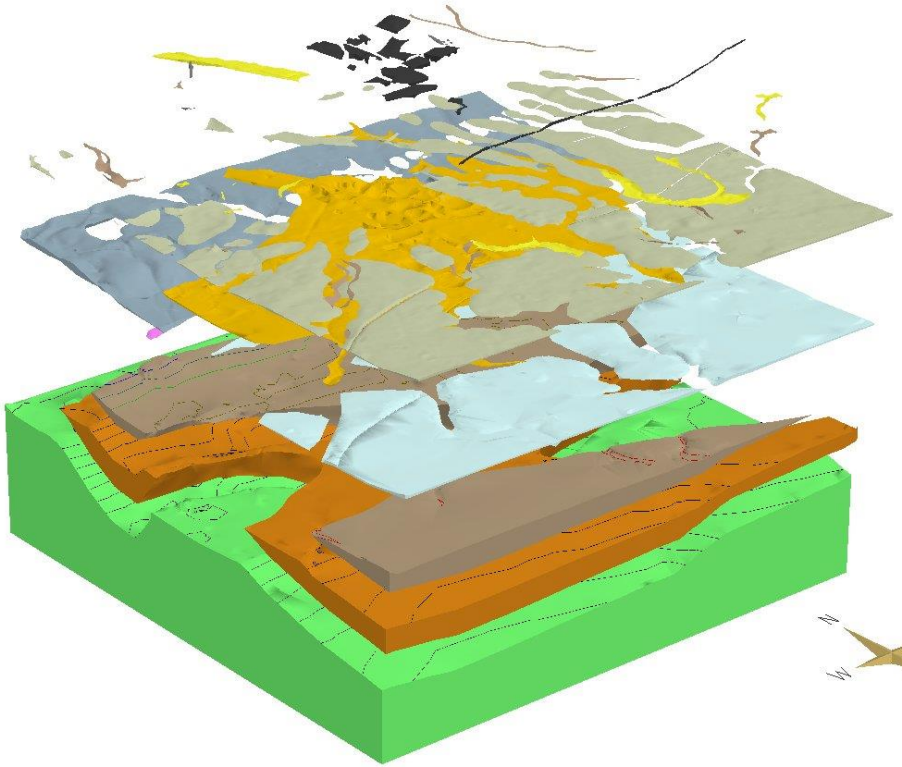
- Carbon capture and storage (CSS)
- Shale gas
- Geochemical baseline mapping in the Thames and Clyde Basins
- Integrated Ocean Drilling Program
- High resolution 3D geological model for flood analysis
- Pollutants in the Thames estuary
- Unconventional gas, renewable heat and deep geothermal
- Subsurface aggregate resources in south-east England
- Sustainable urban drainage
- Volcano monitoring from space
- Investigating new coal technologies
- Ancient crustal dynamics in North Wales

Surveying & Maps

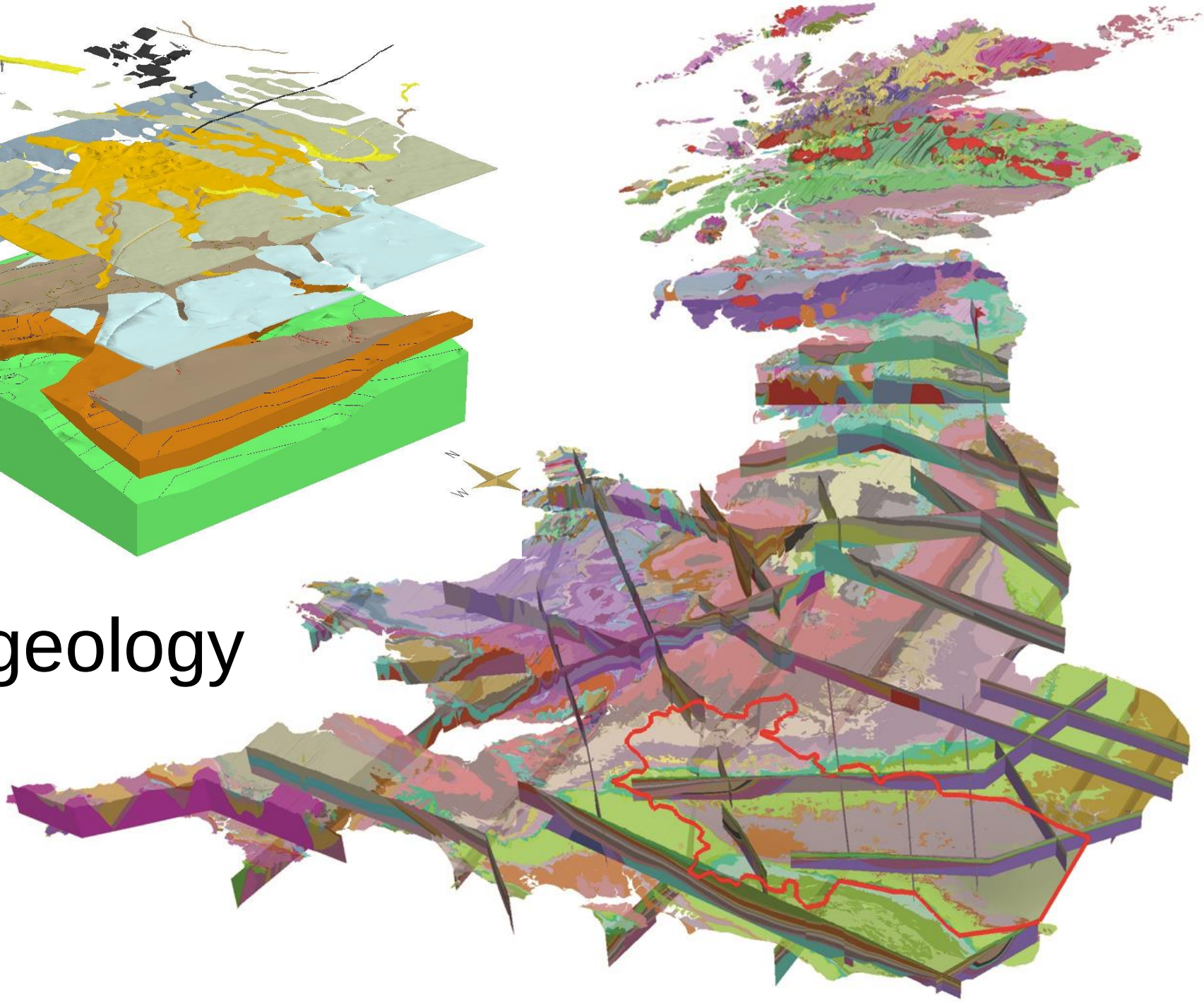


DiGMapGB

- Digital Geological Map of Great Britain - 1:10 000 to 1:625 000 scale
- Four themes: bedrock, superficial, mass movement, artificial
- 1:50 000 product (DiGMapGB-50) has 99% coverage of Great Britain
- 10,000 lithological descriptions, e.g. CHAM-MDST
- Charmouth Mudstone Formation – Mudstone
- Lias Group
- Jurassic
- Previous desc: Brant or Coleby Mudstone



3D geology

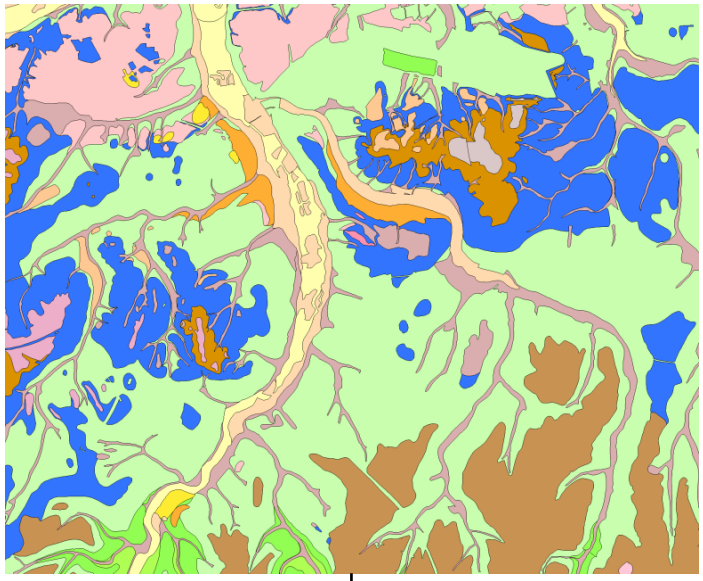


Research & Surveys

- **How do we utilise what we learn?**

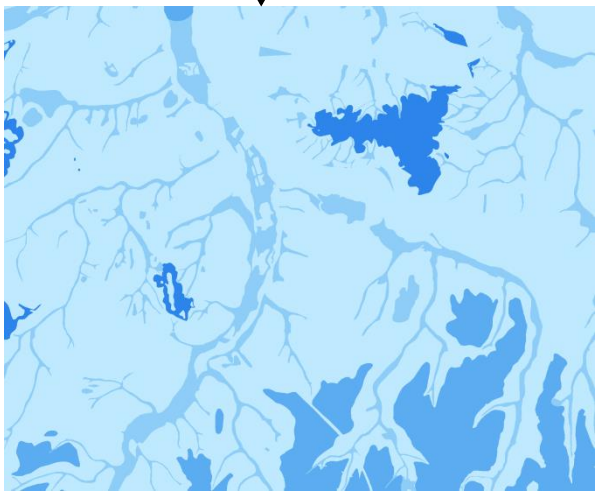
1. We generate substantial amounts of data
2. We improve our understanding
3. We produce standard geological maps -”*baseline products”*
4. We interpret information and develop focused data products that answer specific questions or quantify hazards - “*derived products*”

Baseline products

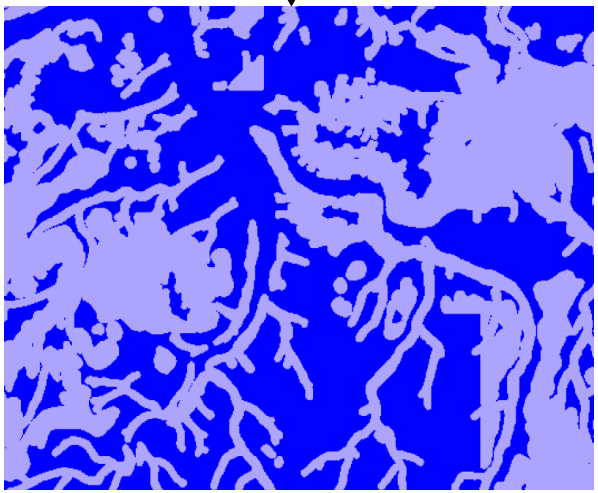


LAMBETH GROUP. Sand, silt and gravel

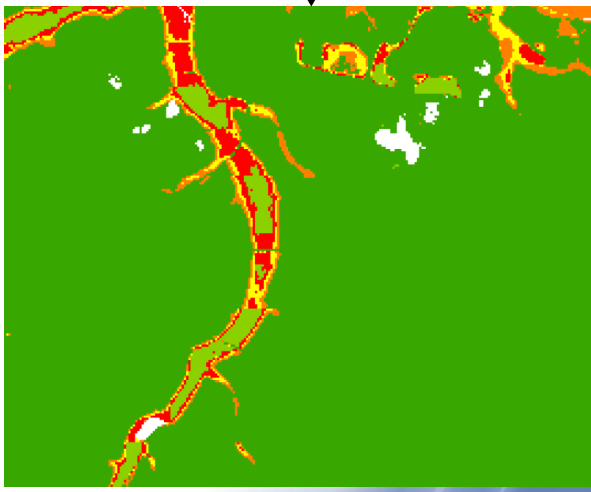
Derived



GeoSure (natural ground stability)



Radon

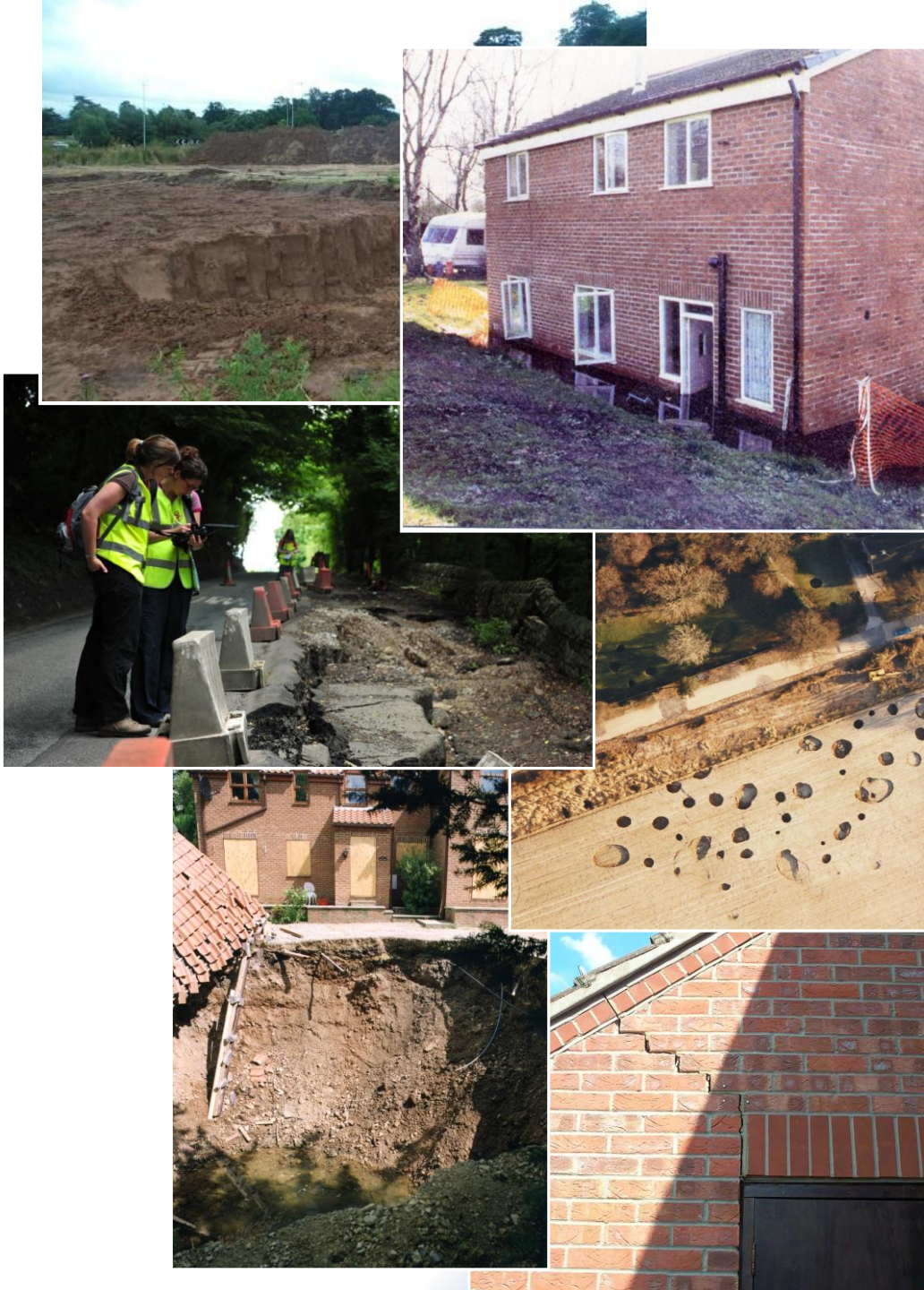


Groundwater Flooding

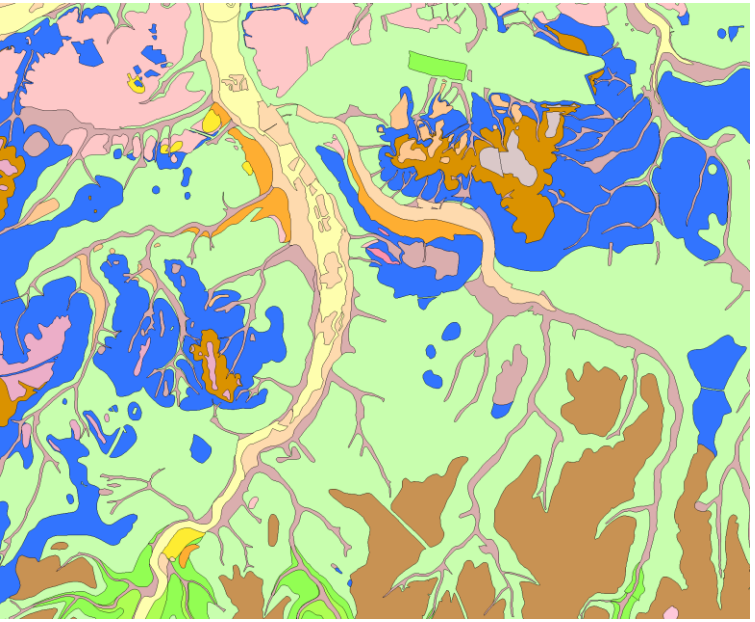
GeoSure

Natural Ground Stability Data

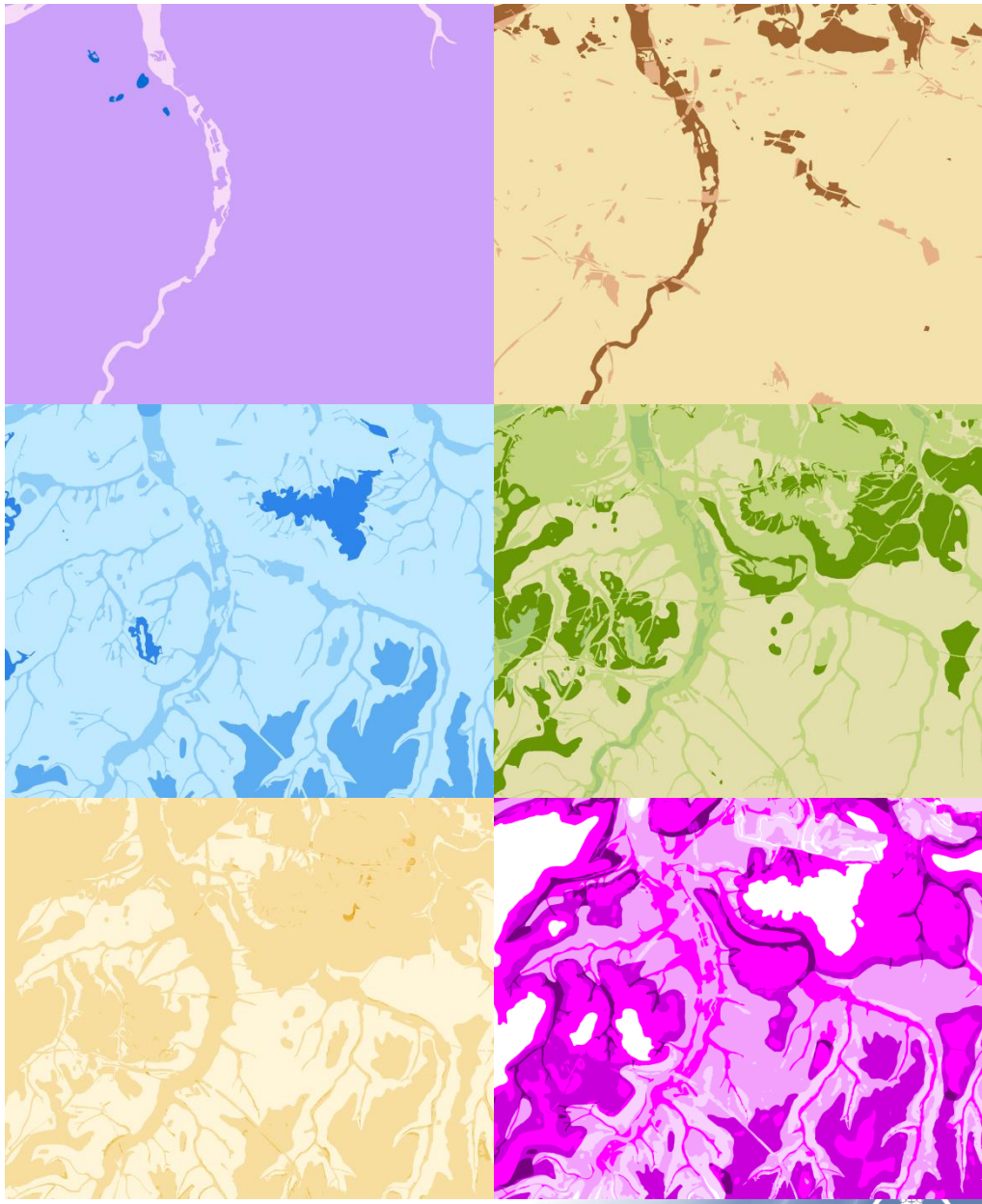
- Collapsible deposits
- Compressible ground
- Landslides
- Running sands
- Shrink swell
- Soluble rocks



GeoSure



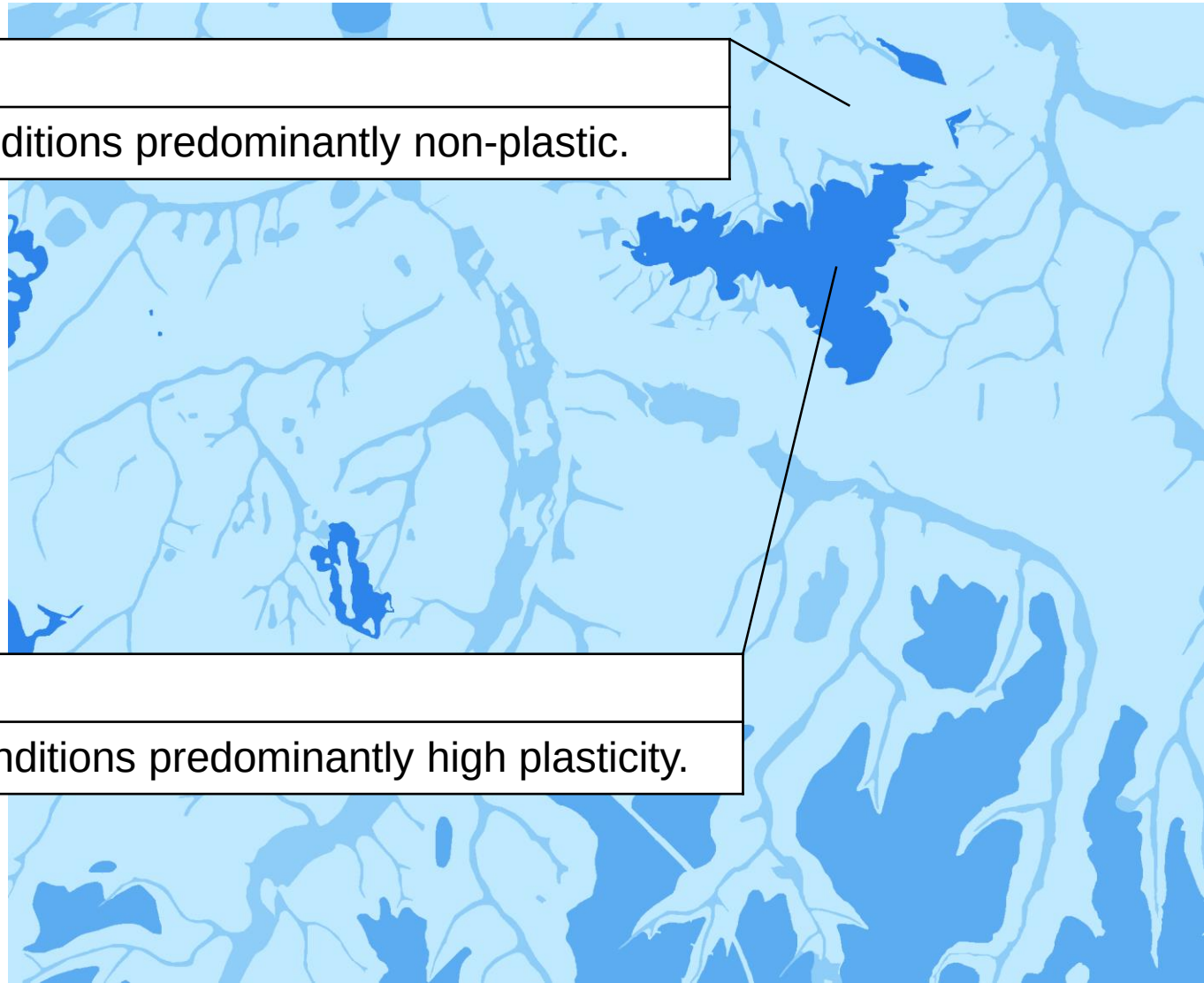
Digital geological map
@ 1:50 000
DiGMapGB-50



Simple classification: A to E (low to high) hazard

Shrink swell example

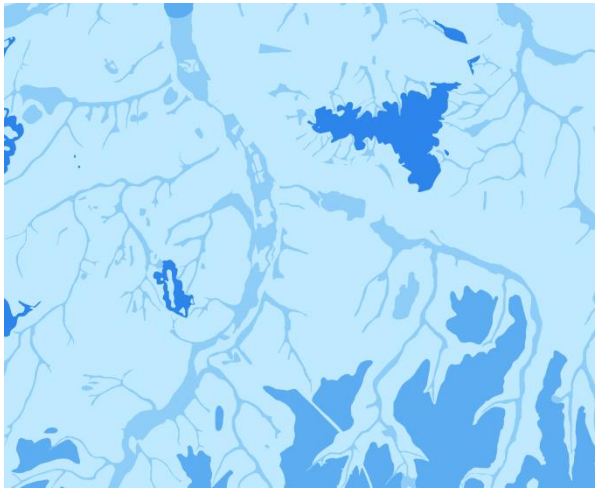
CLASS	A
LEGEND	Ground conditions predominantly non-plastic.



CLASS	D
LEGEND	Ground conditions predominantly high plasticity.

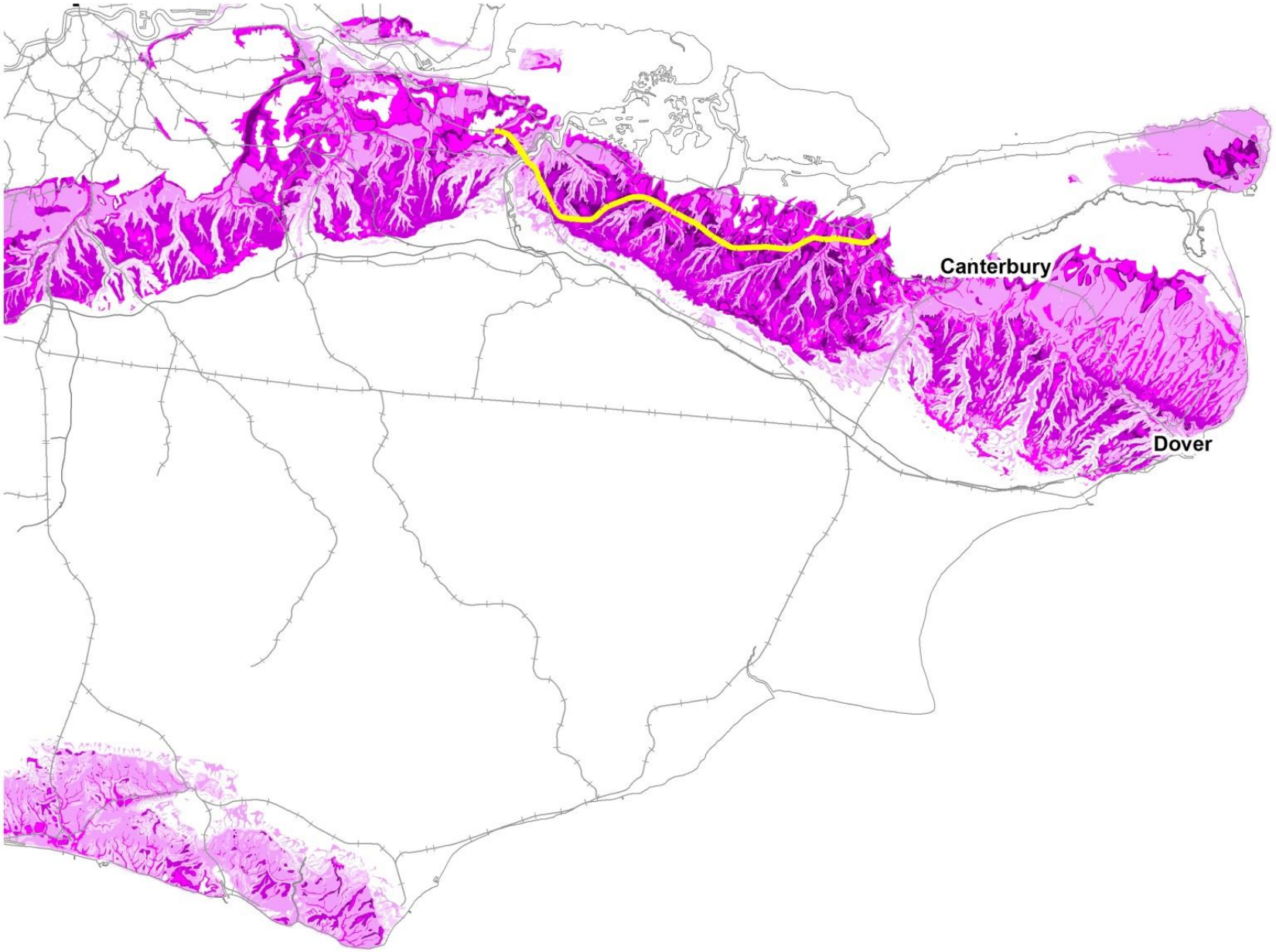
GeoSure

“What is the potential for natural ground movement within the search area?”



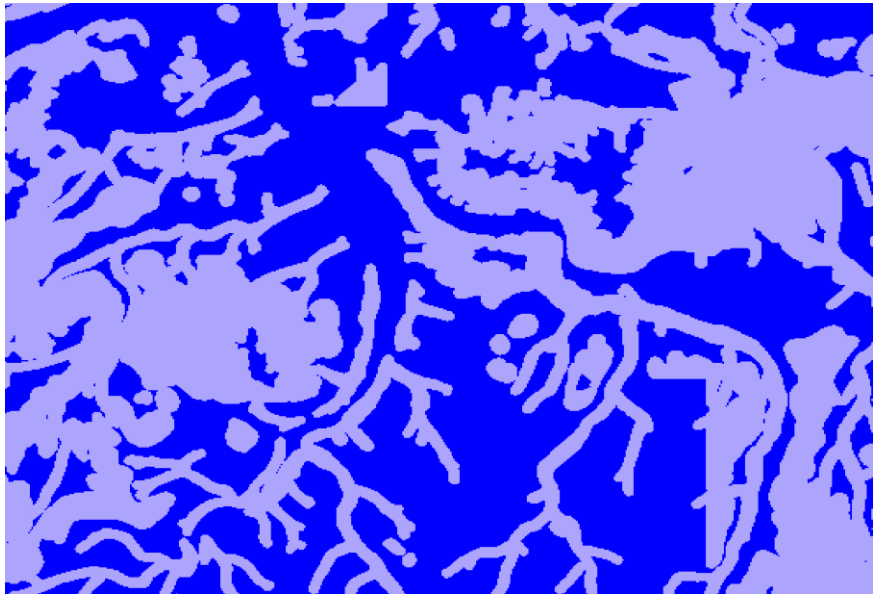
Ground conditions predominantly medium plasticity. Do not plant trees with high soil moisture demands near to buildings. There is a possible increase in construction cost to reduce potential shrink swell problems. For existing property, there is a possible increase in insurance risk, especially during droughts or where vegetation with high moisture demands is present

Sinkholes



RADON

“Is the property in a radon Affected Area?”

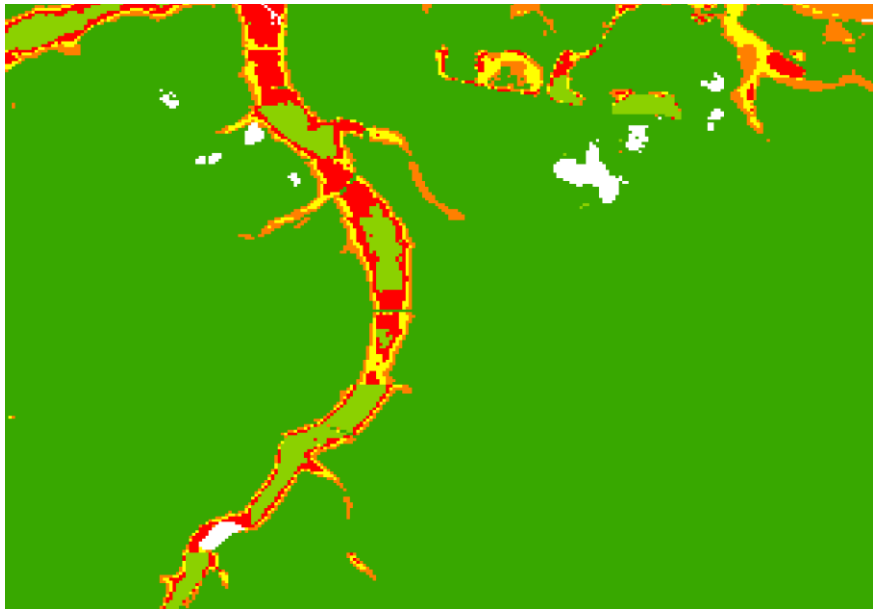


The property is in a Lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level). The property is not in a radon affected area.

What is the susceptibility to **groundwater flooding** based on the underlying geological conditions?

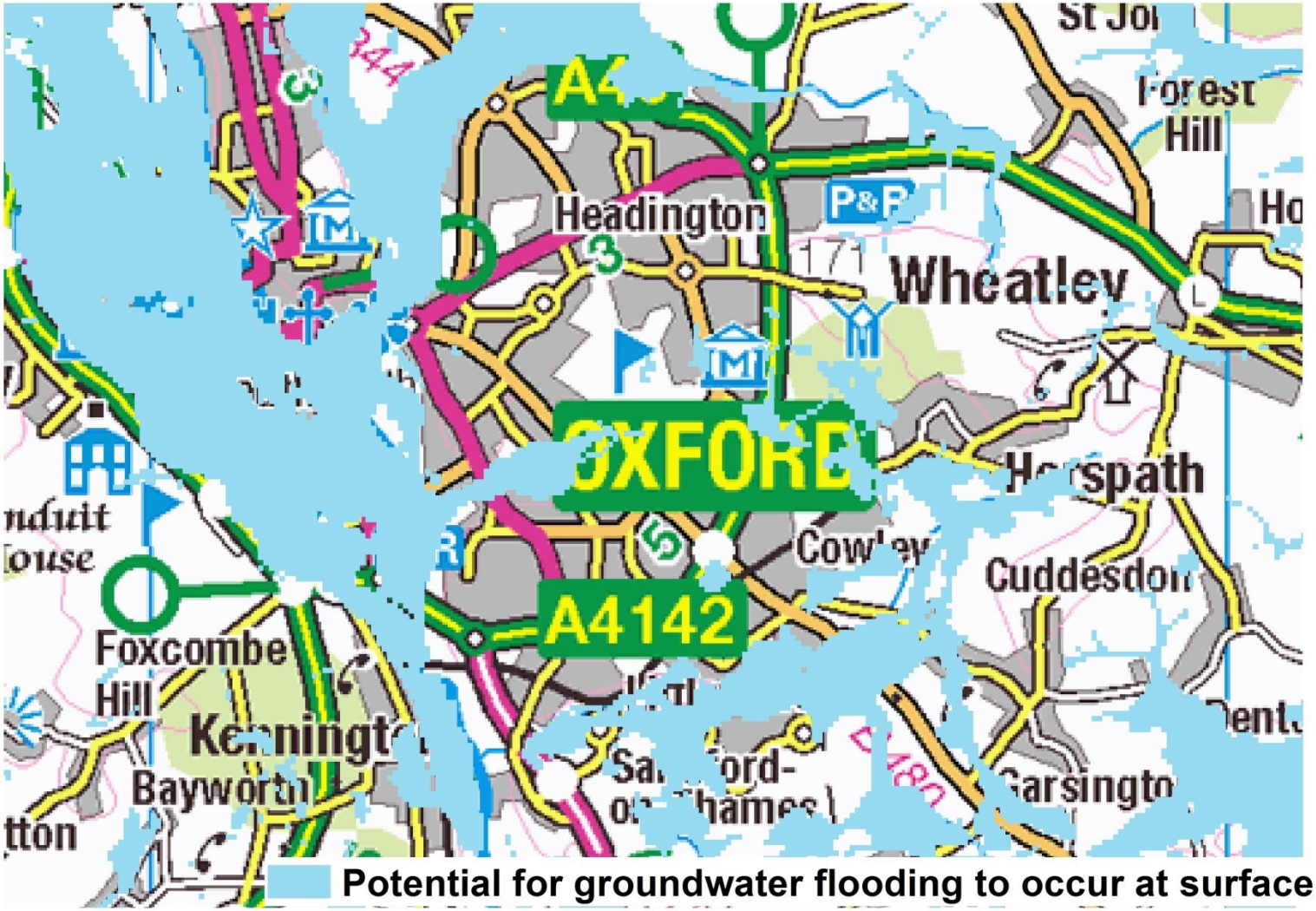
Susceptibility to Groundwater Flooding-

“What is the susceptibility to groundwater flooding in the search area based on the underlying geological conditions?”



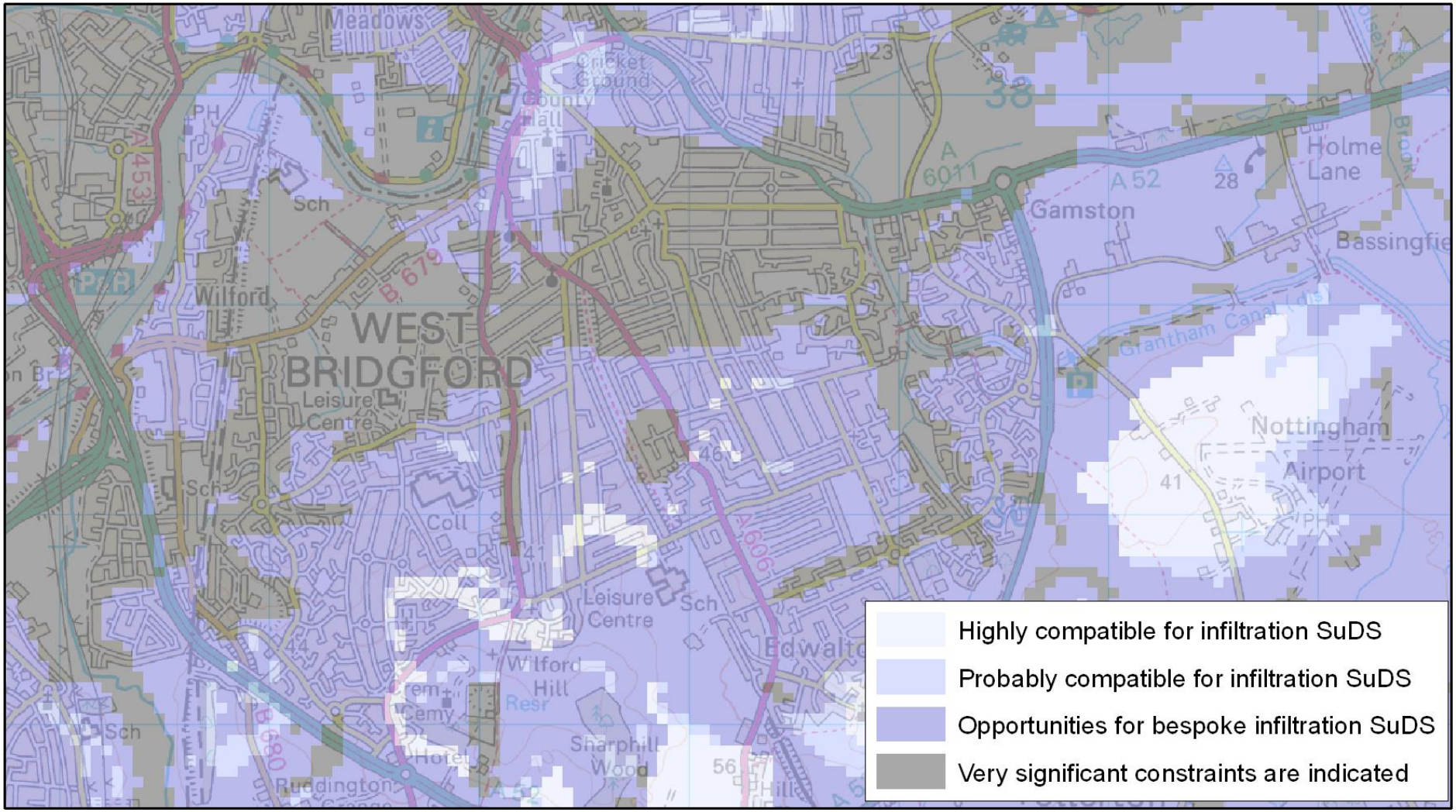
There is a potential for groundwater flooding to occur at surface. You are advised to check that this has not been a problem in the past at this location and/or that measures are in place to sufficiently reduce the impact of the flooding.

Groundwater Flooding

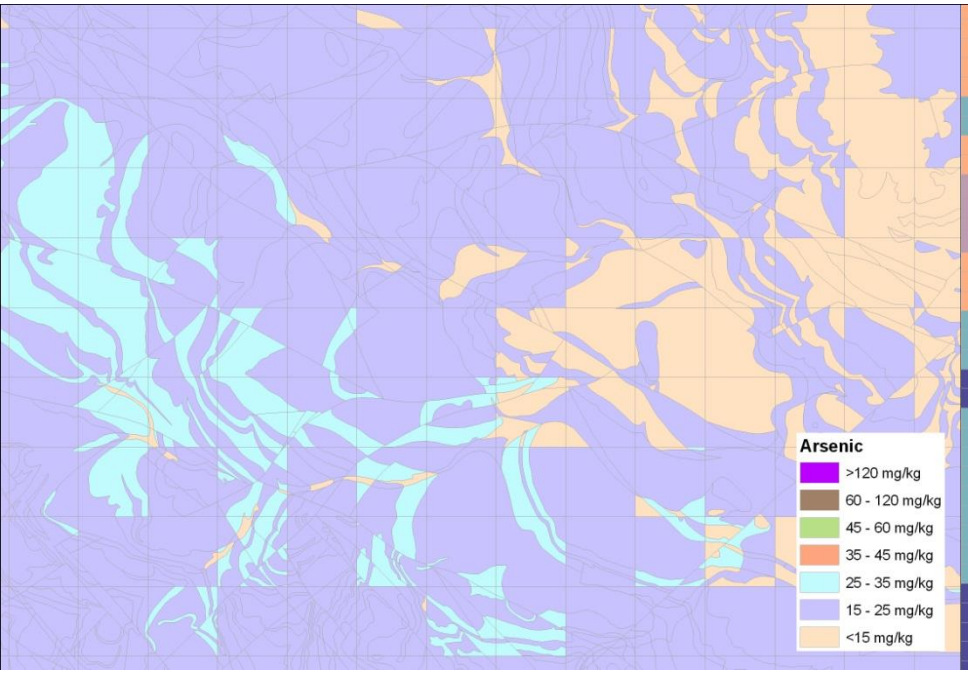


Sustainable drainage

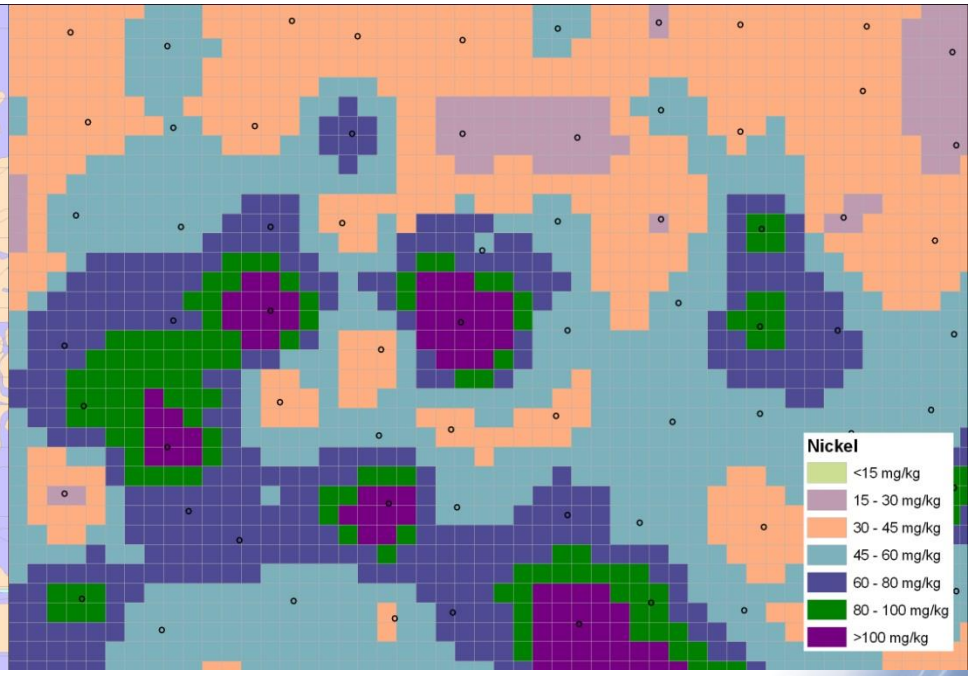
What is the drainage potential of the subsurface?



Soil Chemistry for Environmental Assessments

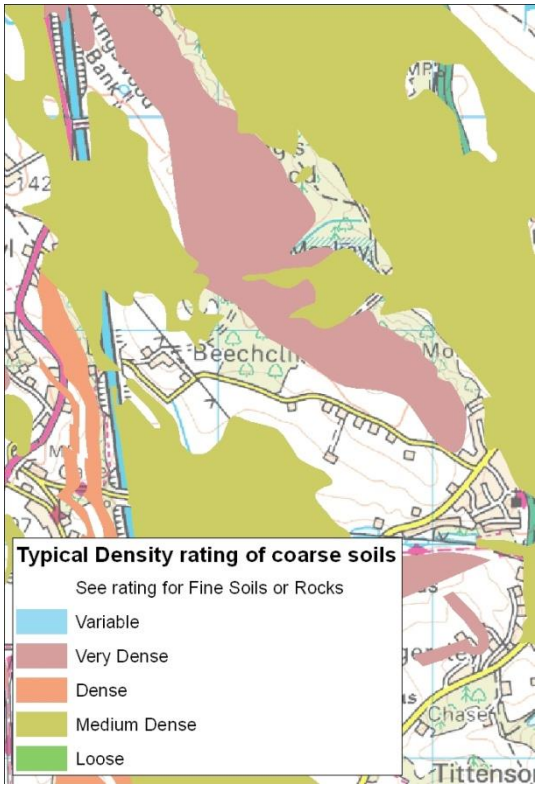


Estimated Ambient Background Soil Chemistry

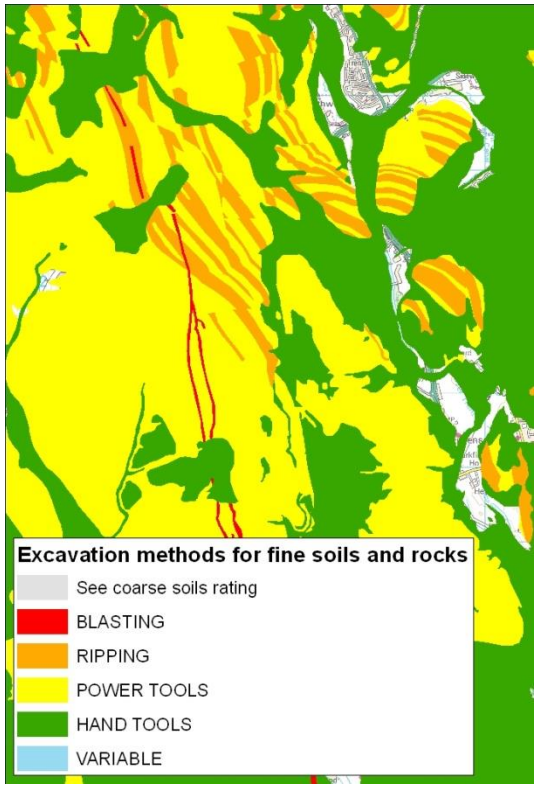


Measured Urban Soil Chemistry (points)
Estimated Urban Soil Chemistry (polygons)

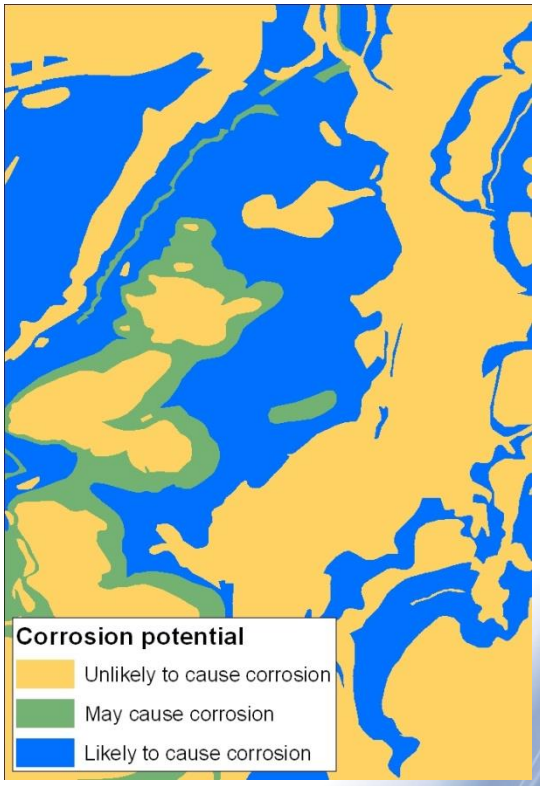
Engineering geology – “BGS Civils”



Engineering Strength



Excavatability



Corrosion

Mining Hazard-Non Coal

- The Mining Hazard (not including coal) dataset provides essential information for planners and developers building in areas of former shallow underground mine workings that may collapse.
- Mining hazards may lead to financial loss for anyone involved in the ownership or management of property, including developers, householders or local government.
- These costs could include increased insurance premiums, depressed house prices and, in some cases, engineering works to stabilise land or property.

How to obtain BGS data?

- Cadcorp can facilitate this for you.
- BGS data can be represented in Cadcorp software
- Prices are only pence per km2- enabling you to request the derived data product that addresses your issues at minimal cost

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- BGS Enquiries – enquiries@bgs.ac.uk
- www.bgs.ac.uk