
3 Geodiversity Audit

3.1 Spireslack Surface Coal Mine

In 2007, the main linear void within the northern part of the Spireslack SCM was proposed by its operators as a local geodiversity site following discussions with the Strathclyde Geoconservation Group, GeoConservationUK, East Ayrshire Council and the British Geological Survey. Whilst this canyon within Spireslack is arguably worthy of geodiversity and conservation status in its own right, there are several important geological features internally within it, and also across the rest of the Spireslack SCM, which deserve protection in the event of site development (Figure 6). If these key features were covered or destroyed by subsequent development, it would be a detrimental loss to the overall value of the site. Thus, the following audit sites, referred to here as 'geodiversity sections' describe these key features in detail. Their protection should be prioritised (and where appropriate enhanced) in any future development of Spireslack SCM. See Appendix 1 for additional geological features of interest which have limited exposure and access and are therefore not described as a key geodiversity section, but provide an important adjunct from a research or general interest point of view. The sites in the appendix should be considered as a second priority for protection than those included in the main audit.

(Figure 6) Aerial view of Spireslack SCM, showing locations of the audited geodiversity sections within the mine. The number of the site corresponds with the equivalent audited site described in the report.

3.2 Spireslack audit methodology

Geodiversity sections throughout Spireslack SCM were selected on the basis of their key categories of geological interest, rarity within Spireslack, and quality within Spireslack. Geodiversity sections may only have one key geological interest category whilst others can comprise an amalgam of several aspects. The key categories of geological interest include:

- Sedimentary rocks: features related to depositional processes and settings
- Stratigraphy: features indicative of an important stratigraphic horizon and helping to define the sequence of geological strata
- Palaeontology: fossils or trace fossils
- Igneous rocks: features relating to intrusive igneous rocks
- Structural geology: faults, folds, fractures or other deformation features
- Mineralisation: mineral vein deposits
- Quaternary deposits: features representative of depositional processes on the Earth's surface
- Economic geology: features relating to man-made structures and processes
- 3D visualisation: a combination of 2D views which provide a 3D appreciation of geology

Rarity was assessed on a local basis in relation to how many examples of the key geological interest there were within Spireslack. A one star rating demonstrates there are many examples of the key interest throughout the site, whereas a 5 star rating demonstrates it is the only example. Quality was assessed on the basis of how well preserved the feature is within Spireslack, with a one star rating illustrating average preservation (e.g. overgrown, covered in spoil, eroding, difficult to visualise) and a five star rating demonstrating exceptional preservation (e.g. geological features very easy to see, and easily accessible).

3.3 Spireslack Geodiversity Audit

The following section comprises individual geodiversity section description and evaluations, and is presented as a set of pro-forma sheets containing:

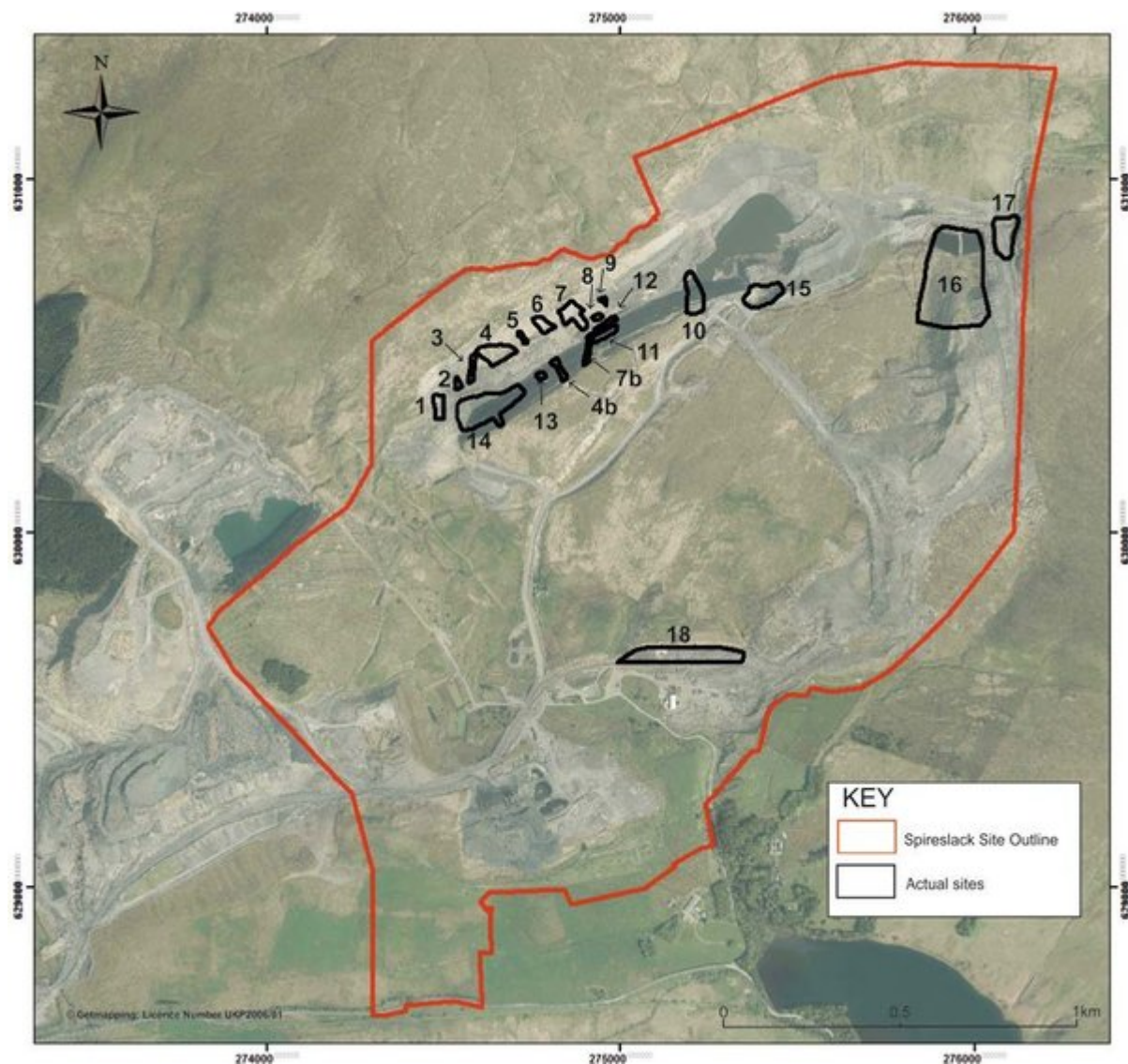
- A summary table classing the key features of geological interest, with a rarity and quality rating in the context of Spireslack;
- A location map (with the site highlighted in yellow amongst their neighbouring sites, drawn in black), and digitised proposed site protection boundary;
- A description of the key geological features in each geodiversity section;
- A review of the access and site enhancement potentials for each site;
- Site photographs

The term 'scarp' is employed throughout the text for the striking rock scarp, created during surface mining, that forms the high back wall at the southern side of the main Spireslack void.

Across all sections audited, a recommended site enhancement is the addition of interpretation boards to explain the geological features.

Where appropriate, observations have been made on the current condition of the site but no assessment of stability has been made. Stability should be assessed by suitably qualified personnel.

[References](#)



(Figure 6) Aerial view of Spireslack SCM, showing locations of the audited geodiversity sections within the mine. The number of the site corresponds with the equivalent audited site described in the report.