Notes to accompany RIGS Recording, Assessment, Designation and Notification sheets

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To develop standardised recording, assessing, designation and notification procedures for RIGS sites, in close consultation with Member Groups, whilst having regard to similar systems developed in other areas of Geoconservation and Bioconservation, and standards and audit requirements of support and funding agencies. [UKRIGS Development Strategy, Objective 4.1].

The documentation accompanying these Notes is in three parts, reflecting different stages in the RIGS procedure. They are on the UKRIGS website for downloading by Member Groups to customise and adapt to suit their requirements. They are also included on the Hereford & Worcester RIGS Group Access database currently under development. Much is self-explanatory and the following notes are mostly comments. These are still at the trial stage and we would welcome feedback.

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STAGE 1. Field Recording and Site Assessment sheets [4 sides]

- Use for new sites or to add information and assessment of value not held on database for existing sites.
- The sheets may be taken into the field as a working copy and written up later for Evaluation and Designation. Notes on assessment of value will likely be needed in the field as a standard reference.
- Data entered into computer – e.g. Access Database.

Sheet 1 Site name and description

- For existing sites most of this information will already be collected. A print-out of such data record could be taken into the field and annotated.
- Privileged information [surveyor, owner, tenant etc] can be given restricted access status on the computer record.
- Likely conservation measures required - just a brief first impression [eg. manual

clearing of scrub, mechanical removal of scree material, re-routing of footpath], as this will be part of the later management plan for the site.

- Literature references etc. should have been completed before going into the field.
- Specialised lists of minerals, fossils etc. could be made separately, the fact recorded here and the details added to the database.
- Copyright of data remains with the original recorder.

Sheet 2 Map of site

- A Geographical Information System [GIS] map would be ideal. Conditions for use are being checked. RIGS Groups may find it useful to link up with County Record Centres.

Sheet 3 Geological section, sketches/photographs of site

- Opportunity here for a ÒvisualÓ record of the significant features of the site - Useful in planning disputes and for a preliminary view of what the site offers for teaching use.
- May usefully show stratigraphical position of this and other sites.
- Use digital camera if possible.
- Use extra space or sheets as required.

Sheet 4 Assessment of value of site

- Full details given below, on separate sheet, for photocopying and use in the field.

STAGE 2. Site Evaluation and Designation [1 side]

- All the previous documentation and data are then evaluated to make the case for site designation [some may prefer to use “registration”].
- All documentation should be preserved and kept available for future inspection.
- Groups may wish to bear in mind known exposures of similar examples and decide which are worthy of RIGS status.
- All limestone pavements are included as sites of biological importance and most are likely to also be designated as RIGS sites.
- Groups should be careful not to devalue the RIGS concept by designating too many similar low-value sites.

- Use the assessment of value notes to help formulate comments in the case for site designation.

- The formal recommendation for designation should be made at a properly constituted meeting of the Group or Committee and duly minuted.

- Make computer entry.

STAGE 3. Notification of RIGS to Local Authority [2sides]

Side 1 Summary details

- Make sure copies are sent to all relevant authorities - unitary, county, district, parish.

- Use the high-value comments from the Evaluation and Designation sheet to make the summary evaluation of site value and importance. [This is the key distillation of the whole assessment of value procedure!!]

Side 2 Location map

- This may be a copy of sheet 2.

- Make computer entry.

- Notify others - local Wildlife Trust, Field Club, Geographical Association Local Group, Geologists' Association Local Groups and Affiliated Societies, local educational establishments.

Later stages of RIGS work will require a site management plan, with a detailed assessment of conservation measures required.

Selected sites will require display boards and leaflets for the general public, with some developed as teaching sites with worksheets and maps at appropriate levels.

STAGE 4. Assessment of value of site

- These notes should be photocopied as they are likely to be needed in the field, using descriptors, comments and statements to help to standardise assessment of value for each heading.

- For sites where there are several exposures of widely contrasting geological features or safety issues it may be necessary to make a separate assessment of value for an individual exposure.

- THERE IS NO NEED FOR TOTALS*

Four related Assessments are envisaged, each with their own criteria, relating to the value of a site. This should provide a snapshot of what attributes the site has, the value of those attributes to potential users and a summary of the worthines of the site for designation as a RIGS. This is the key to site selection.

A. Access and Safety Criteria

B. Value of the Geology and Geomorphology for Education and Science.

C. Potential for public awareness - Culture, Heritage and Economic Criteria

D. Geodiversity Value - importance to the local geodiversity network.

A. Access and Safety Criteria

Access and safety criteria should be taken into account when assessing a site. This information will be required by potential users, particularly field leaders, teachers and researchers looking through the recorded data for sites to visit. Accessible sites near schools will be particularly useful.

For criteria 1 - 5, the scoring ranges from 0 (lowest) to 10 (highest), with 5 designated as acceptable. The 0, 5 and 10 scores have been given specific descriptive statements in the list below. When assessing a site use may be made of any number from 0 to 10. This is not an assessment of risks. The leader of the group will be responsible for this.

For criteria 6 - 9 no score is appropriate. However, space for additional comments about each of the nine criteria is provided on the record sheet. Examples of comments are included to help the assessor convey details to the end-users.

1	**Road access and parking**	
	0	no road access within 5 km
	5	closest access and parking for minibus 1 km away
	10	good road access and safe parking at site for a coach
	Comments	e.g. maximum vehicle size, distance to walk
2	**Safety of Access to Site**	
	0	unavoidable unstable areas
	5	acceptable level of everyday hazards on defined paths to exposures
	10	all parts of site present minimal hazard, wheelchair access
	Comments	e.g. state of footpath, any gates, stiles, wheelchair access

3	**Safety of Use of Exposure**	
	0	too dangerous for use
	5	acceptable level of everyday hazards in defined area at exposure with hard hats
	10	level areas, low exposures, stable surfaces; hard hats not needed.
	Comments	e.g. unstable faces, unprotected vertical drops
4	**Permission to visit by large parties [c30]**	
	0	permission refused
	5	permission usually granted on written request
	10	open public access
	Comments	report any new ownership details, if appropriate
5	**Current condition of Exposure**	
	0	overgrown and severely weathered
	5	sufficient useful exposure for use by group of 10 students
	10	clean fresh exposure, open to large party
	Comments	brief; report any conservation work required separately
6	**Current conflicting activities** Are current activities conflicting with the site?	
	Comments only	specify problems: e.g. active extraction, landfill, land reclamation, building work, roadstone/gravel storage, vandalism
7	**Restricting conditions** May be due to sensitivity of site or adjacent area.	
	Comments only	e.g. no hammering, no collecting, keep to footpaths, keep out of adjacent bird reserve
8	**Nature of Exposure**	
	Comments only	Natural: cliff, gorge, tor, river bank; or Man-made: quarry, opencast, cutting, mine
9	**Multiple Exposure Site or Prospect of Trail Site**	
	Comments only.	An additional summary cover sheet will be required. e.g. one of three exposures at site; within 2 km of another RIGS site at grid reference..

B. Criteria for Assessing the value of the Geology and Geomorphology of a site for Education and Science.

These are likely to be the key criteria to justify conserving a site, even if it has no current access.

For these criteria a scoring system of 0 to 10 is used, with 5 given to a feature having worthwhile value. A single site is unlikely to score highly on every criterion. Spaces for comments have been left on the recording sheet.

1	**Surface processes**	
	Good evidence of recent and present-day weathering, erosion, transport, deposition. May include examples of physical, chemical and biological weathering; processes of gravity, rivers, glaciers, wind, sea; soil profile.	
	0	no evidence
	5	reasonable quality evidence of a range of such aspects
	10	good example of evidence for two or more aspects
	Brief comments about significant features present	
2	**Geomorphology**	
	Good example of a landform or landforms resulting from surface processes. May include for example, scree, landslip. escarpment, tor, valley, gorge, corrie, arete, moraine, esker, raised beach, dry valley, cave and limestone pavement. These are often components of Areas of Outstanding Natural Beauty. Sites may include viewpoints of such features.	
	0	no evidence
	5	single feature
	10	range of related features
	Brief comments about significant features present	
3	**Sedimentary rocks**	
	Good evidence for the processes of formation of sedimentary rocks and relationships between various rock types present. May include evidence from sedimentary structures [e.g. graded bedding, cross bedding, sole structures, unconformities] to interpret erosion, transport and depositional environments.	
	0	no sedimentary rocks exposed
	5	limited range of useful evidence in relation to one or two rock types
	10	wide range of good evidence in relation to two or more rock types
	Brief comments about significant rock types and features present	

4 Fossils

Good example of evidence for the evolution of life on Earth. Good range of species in abundance, giving clear evidence of environment. Specimens of one or more rare species.

May include fossil assemblages, trace fossils and other palaeo-environmental indicators to interpret modes of life and environments of deposition, for example swamp, reef, continental shelf, ocean deep. Type sections are likely to be SSSIs.

0	no fossils
5	limited range and number of fossils with some evidence of environment
10	wide range of species in abundance, giving clear evidence of environment; important rare species

Brief comments about significant species and assemblages present, and palaeo-environment

5 Igneous rocks

Good evidence for the processes of formation of igneous rocks, and relationships between various rock types present.

May include evidence from textures and structures for styles of emplacement, cooling history and contact relationships with adjacent rocks, including cross-cutting.

0	no igneous rocks
5	limited range of useful evidence in relation to one rock type, e.g. dyke contact
10	wide range of evidence in relation to one or more igneous rock types in context of emplacement

Brief comments about igneous rocks present and their relationship to other rocks

6 Metamorphic rocks

Good evidence for the processes of formation of metamorphic rocks and relationships between various rock types present.

May include evidence of pressure and temperature regimes; structures and textures of styles of deformation and recrystallisation; and any pointer towards identifying original rock types

0	no metamorphic rocks
5	limited range of useful evidence in relation to one rock type
10	wide range of evidence in relation to two or more rock types

Brief comments about rock types present, and evidence for processes

7 Tectonic (structural) features

	Good evidence from the structural relationships for aspects of the tectonic history of the area. May include evidence from faulting, folding, deformation and rock type, for interpretation at any scale up to plate tectonics	
	0	no such features
	5	useful example of folding or faulting
	10	good examples of folding and faulting
	Brief comments about structural features present, including significant alignments.	
8	**Mineralisation**	
	Good evidence for mineralisation processes and relationships between various rock types present. May include mineral assemblages and depositional contexts as evidence for evaporite, hydrothermal and replacement mineralisation in beds, veins, flats and other ore bodies.	
	0	none
	5	evidence of minor post-depositional mineralisation e.g. small vein
	10	extensive range of minerals and good evidence for origin of mineralisation
	Brief comments including names of major or rare minerals, style of deposition, crystallisation or precipitation	
9	**Historical geology (stratigraphy)**	
	Good evidence for the correlation of events over an extended timescale and, in conjunction with other sites, over a wider area. May include zone fossils, environmental indicators, condensed sequences, marine bands, ash bands, flash flooding, cyclothems, unconformities, cross-cutting relationships. Stratotype sections may be SSSIs.	
	0	no evidence for any time lapse
	5	some evidence for a limited sequence of events over short timescale in a limited area
	10	good range of detailed evidence for correlation of events, over an extended timescale and in conjunction with other sites, over a wider area
	Brief comments about the evidence and its interpretation.	

C. Culture, Heritage and Economic Criteria - The potential for public awareness

These include important associations with the cultural, historical and economic aspects of Earth science which have significant potential for raising public awareness. Large exposures with impressive or clear features, possibly associated with industrial history and suitable for visits by family groups are likely to be given a high rating.

Here is a possible scoring system IF this is felt to be appropriate for an aspect somewhat difficult to quantify. The original Staffordshire sheets were scored 0 - 10 and the 0, 5 and 10 scores have been given specific descriptive statements. [Later Staffordshire assessments were simply "no, maybe, yes, don't know"].

1	**Historical, archaeological or literary associations**	
	May have cultural and heritage associations with literary or historical events and people relevant to Earth science.	
	0	no relevant associations
	5	significant associations useful for raising public awareness
	10	important associations providing excellent opportunity for raising public awareness
	Brief comments: names of people and/or events	
2	**Aesthetic landscape**	
	May be an attractive/aesthetic landscape relevant to Earth science, promoting public awareness and appreciation of Earth science and may even be an Area of Outstanding Natural Beauty. E.g natural features such as mountain, upland, scarpland, valley, coast; man-made features such as urban, derelict, reclaimed, extractive.	
	0	no relevant aesthetic landscape
	5	significantly aesthetic landscape helpful in raising public awareness
	10	outstanding aesthetic landscape providing excellent opportunity for raising public awareness
	Brief comments: evocative mountain, scarpland or other features. State whether already designated as AONB	
3	**History of Earth science**	
	May be a significant site in the history of Earth science, for example where scientific concepts were first demonstrated by famous geologists.	
	0	no relevant associations
	5	significant associations useful for raising public awareness
	10	important associations providing excellent opportunity for raising public awareness
	Brief comments: include people, events and concepts	

4	**Economic geology**	
	May have economic associations with the past and present extraction and use of geological resources as raw materials, their subsequent processing, or the reclamation and later use of the site. Examples may include: • past/present extraction of coal, sand and gravel, building stone, metallic ores • processing plants such as furnaces which are likely also to be sites of importance for industrial archaeology • land reclamation projects where the geological aspects are significant	
	0	no extraction or exploitation
	5	significant economic activity useful for raising public awareness
	10	important economic activity providing excellent opportunity for raising public awareness
	Brief comments about nature of resource, its extraction and exploitation; site reclamation and redevelopment.	

D. Geodiversity Value

Key sites in the Geodiversity network may represent unique or outstanding features or exceptional preservation and should be designated as a RIGS and protected for their specific scientific value. Such sites may have been considered for designation as SSSIs, but not fully met the requirements. Most sites of high specific scientific value will also have high assessed ratings for education and science and for cultural, heritage and economic aspects, but there may be exceptions.

High-rating examples would include sites of the only exposure of a key horizon or feature, e.g. an unconformity, a basal conglomerate, a marine band, an ash band, a dyke, a highly fossiliferous bed, waterfall or other feature listed under 1 - 9. Lower ratings should be given to sites with locally more common or less well preserved features.

Geodiversity Value can be considered as an assessment of the importance of the site to the local network. The assessment of the value of the geology and geomorphology for education and science is separate.

Geodiversity Value may appear to be a rather subjective assessment. It should be justified by accompanying comments and details and may require a more advanced scientific assessment by a competent authority. It should take into consideration an overview of other sites in the vicinity. A scoring up to 10 is suggested .

0	no specific scientific interest
5	some specific scientific interest, the average for similar sites in the vicinity
10	Key site, showing unique or outstanding features, the best site in the vicinity