CRITERIA FOR VALIDATION AS A CHARTERED SCIENTIST

1.1 GENERAL REQUIREMENTS

To qualify for validation as a Chartered Scientist, a candidate must:

- Be a Full Member or Fellow of the Institute.
- Hold a recognised degree or equivalent qualification in Soil Science (see below for definition of Soil Science) or a cognate subject.
- Have a minimum of four years suitable professional experience judged as being at the required level for CSci (i.e. minimum M-level). Education and professional competency benchmarks are set out in Section 1.3.
- Have a greater level of professional experience than the four years minimum, if the initial degree secured had a low soils bias (See Section 1.3).
- The route for individuals without formal qualifications in Soil Science will only be exercised in exceptional circumstances following rigorous procedures to ensure that the professional experience accrued over the 10 years is at or above the required M-level.
- Be supported by two established IPSS members who have personal knowledge of the applicant's background and work. If this is impossible the names and addresses of two professional referees who can be approached is acceptable.
- Have completed and submitted an application form including a professional report supplemented, where appropriate, with accompanying professional documents.
- Have paid the appropriate application fee; and
- Satisfied the Institute that they meet the requirements for validation.

Soil Science definition:
Soil Science embraces the complex chemical, physical and biological properties of soils per se, as well as being interwoven with other scientific fields such as the biological sciences of botany, ecology and microbiology, and the earth sciences of geology, geography and climatology. Other subjects such as mineralogy and pedology are also of relevance. The application of Soil Science to an ever-increasing range of current issues, not least climate change, environmental protection, biodiversity and nature conservation issues are increasing in importance, although the traditional study areas within agriculture, forestry and land restoration remain of vital importance.

The above requirements are expanded within the following sections.

1.2 MEMBERSHIP CATEGORY WITHIN IPSS FOR SOIL SCIENTISTS

Only Full Members and Fellows will qualify for Chartered Status.
The definition of a MEMBER is given as follows:
The category of Member is the grade of corporate membership into which experienced Soil Scientists and allied disciplines normally seek entry. The entrance qualification is a recognised honours degree (see Section 1.3) followed by a minimum of 5 years of suitable professional experience and adherence to a number of competencies throughout their professional lives, using a combination of knowledge, training and experience (see Definition of an Soil Scientist below). Graduates with non-honours degrees or honours degrees in other subjects with a lesser soils bias may be eligible, but would normally be required to have gained at least 7 years suitable experience.

The definition of a FELLOW is given as follows:
Members who have achieved an important level of responsibility and professional experience and who have become recognised nationally / internationally within the profession. The candidate would normally have been a Member of the Institute for 5 years.

Definition of a Soil Scientist:
Soil Scientists utilise their knowledge at a variety of scales either to address fundamental studies of soil properties and/or processes, or to apply such information to the solution of problems within the environment. Traditionally, Soil Scientists would have studied Soil Science within several scientific disciplines for example soil chemistry, pedology and soil physics, and a Professional Soil Scientist would be expected to have a working knowledge of most, if not all, of these. Soil Scientists would therefore have completed a first degree in a pure or applied science, followed by an MSc and PhD, or post-graduate diploma in Soil Science courses. More recently, with the gradual demise of first degree pure Soil Science courses, there has been a trend for new ‘environmental’ courses with a substantial element of Soil Science. Professional Soil Scientists with the latter background must also have a comprehensive knowledge of basic soil properties and processes outwith their specialist field.

A Soil Scientist would be expected to have the following generic competencies throughout their professional lives, using a combination of their knowledge, training and experience to be able to:

A. Deal with complex scientific issues, both systematically and creatively, make sound judgements in the absence of complete data and communicate their conclusions clearly to specialist and non specialist audiences:
   - use a combination of general knowledge, understanding and skills to optimise and engage in the application of existing and emerging science and technology;
   - use theoretical and practical methods in the analysis and solution of problems;
   - communicate effectively.

B. Exercise self-direction and originality in solving problems, and exercise substantial personal autonomy in planning and implementing tasks at a professional level:
   - plan and organise projects effectively;
   - work effectively in a team;
   - use effective influencing and negotiating skills.

C. Continue to advance their knowledge, understanding and competence to a high level:
   - demonstrate a commitment to CPD;
   - demonstrate an understanding and commitment to Heath and Safety and environmental issues related to employment;
   - comply with the relevant Codes of Conduct.
1.3 RECOGNISED DEGREE OR EQUIVALENT QUALIFICATION

The nature of the degree or equivalent qualification and the level of Soil Science tuition within the course that is held by the applicant determines the minimum amount of relevant experience that the applicant must possess in order to qualify for validation. A candidate must have a Masters degree or equivalent qualifications or have post-graduate experience demonstrably at the M-level.

There are no British Universities that provide an honours course in Soil Science. Soil Science is therefore taught, more often, as part of another course within, for example, agriculture, environment studies, land management or allied topics. The degrees, and equivalent qualifications, together with the corresponding amounts of relevant experience that are required are listed below:

<table>
<thead>
<tr>
<th>DEGREE OR EQUIVALENT QUALIFICATION</th>
<th>NORMALLY REQUIRED YEARS OF RELIVANT POSTGRADUATE EXPERIENCE (see Section 1.4)</th>
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</thead>
<tbody>
<tr>
<td>Degrees (MSc or PhD) and equivalent qualifications* awarded by a university or institute of higher education in which at least 50%* of the study was comprised of Soil Science subjects.</td>
<td>Four years</td>
</tr>
<tr>
<td>Degrees (MSc or PhD) and equivalent qualifications* awarded by a university or institute of higher education in which at least 25%* of the study was comprised of Soil Science subjects, or BSc degrees where 50% of the course was comprised of Soil Science subjects.</td>
<td>Five years</td>
</tr>
<tr>
<td>Degrees (BSc, MSc or PhD) or equivalent qualifications* awarded by a university or institute of higher education in a science or technology subject, but with little or no Soil Science component*.</td>
<td>Seven years</td>
</tr>
<tr>
<td>Applicants who do not have formal degree qualifications (i.e. BSc, MSc or PhD), but hold established professional positions and can demonstrate long Soil Science experience will be assessed on an individual case basis.</td>
<td>Ten years</td>
</tr>
</tbody>
</table>

*If an accredited Masters level qualification is not present, it is possible to demonstrate Masters level achievement through a combination of academic awards and appropriate applied experience, where the latter incorporates sound Soil Science principles.

*Where the assessors are unsure about the quantity or quality of the Soil Science content, reference to the President of the British Society of Soil Science should be made for guidance. It is anticipated that the soils content of courses taught at the major centres of soils excellence e.g. Universities of Aberdeen, Newcastle, Reading, Cranfield, Nottingham, Lancaster and Imperial College will have a value of greater than 50%.

1.4 RELEVANT EXPERIENCE

Soil Science embraces a diverse range of activities and any guidelines on professional training and experience must be flexible enough to meet individual needs and circumstances. However, there are certain fields of training and experience that will normally be highly desirable for all Soil Scientists and these can be supplemented by others which are likely to be more specific to the individual. Examples of such training/experience would include:
British Society of Soil Science (BSSS) organised scientific workshops, international conferences, field demonstrations etc.

Themed seminars and training events organised by BSSS or IPSS.

Joint scientific meetings held with the Society of Chemical Industry, British Geographical Society, Institute of Biology, British Land Reclamation Society etc.

Members applying for validation as a Chartered Scientist are also required to demonstrate professional competencies as laid out by the Science Council (see Section 1.2), and in the context of Soil Science with particular emphasis on:

- An ability to understand the complexities of Soil Science and soils processes in space and time in relation to his/her speciality.
- An ability to communicate clearly verbally and in writing.
- A clear understanding of the meaning and needs of professionalism.
- The need to maintain Continual Professional Development records.
- An awareness of Health and Safety issues and other statutory obligations applicable to his/her discipline or area of work.
- A knowledge and understanding of the Code of Conduct operated by the Institute of Professional Soil Scientists and published in their 'Articles of Association'.

1.5 SUPPORT WITH APPLICATION FORM

The application of a Soil Scientist wishing to join the Institute of Professional Soil Scientists must be supported by a proposer and a seconder, who have personal knowledge of the candidate. Where the application is also for Chartered Status, the sponsors should normally both be Chartered Scientists and have been Chartered for at least three years. However, this may not be possible in all cases and if difficulties arise, the applicant should refer to the Institute Administrator to confirm that his / her sponsors would be acceptable for Chartered Status to be achieved.

1.6 APPLICATION FORM AND PROFESSIONAL REPORT

Any application for validation as a Chartered Scientist must be on an approved form or submitted via the online form and accompanied, where necessary, by a professional report.

Key items within the application form include:

- Full details of technical education with Soil Science courses undertaken during undergraduate or post-graduate courses. Soil topics (for example; soil chemistry, physics, mineralogy, biology, microbiology, ecology, survey, pedology etc.) studied should be listed, to clearly demonstrate the level of soils knowledge to meet the M-level benchmark (see Section 1.3).
- Previous appointments and training should be incorporated into a professional report, which will be of critical importance, if the level of Soil Science studied as an undergraduate is limited.

The professional report should incorporate:

- The dates and the periods of relevant experience in the profession and practice of Soil Science that the candidate is claiming.
- The tasks undertaken for each period of experience cited, including the level of responsibility of the applicant and the names of the supervisor(s). The report should
explain the ways in which such activities have contributed to the relevant experience that the applicant is required to demonstrate.

- Each period of experience shall be countersigned by a supervisor, employer or other appropriate person who has personal knowledge of the applicant's work. The signatory is required to confirm, on the basis of personal knowledge, that the information provided is a fair and reasonable description of the work undertaken and the applicant's contribution.
- It should normally be around 1500 words in length, be concise and be typewritten on the application form (or attached).

An inventory of the work undertaken will not be acceptable as a professional report.

1.7 SUPPORTING DOCUMENTS

An applicant applying for both membership of the Institute of Professional Soil Scientists and for validation as a Chartered Scientist is required to submit a portfolio of supporting paper documents prepared during the period of relevant experience cited in the application form, and that help to demonstrate that the applicant has obtained the necessary relevant experience for validation. If using the online forms these can be uploaded where prompted.

The documents may comprise:
- Photocopies of academic certificates.
- Reports.
- Published papers.
- Other relevant documents considered by the applicant to be appropriate.

1.8 PROFESSIONAL INTERVIEW

Applicants for validation as a Chartered Scientist will be required to attend a Professional Interview if the scrutinisers (Professional and Technical sub-committee) cannot determine whether the cited experience is appropriate, or need further guidance on critical items.

The interview will be conducted in English and last appropriately one hour. It will primarily examine whether the candidate has the range of relevant experience as described in 1.4 above.

1.9 RECORDS

The IPSS Administrator will maintain proper records of new Chartered Scientists for submission to the Science Council as requested. A list will also be published on the IPSS web page, Members can opt out of being listed online.