



NSAI
Standards

Irish Standard
I.S. EN ISO 16133:2018

Soil quality - Guidance on the establishment and maintenance of monitoring programmes (ISO 16133:2018)

I.S. EN ISO 16133:2018

Incorporating amendments/corrigenda/National Annexes issued since publication:

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard — national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation — recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):

NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.

This document is based on:

EN ISO 16133:2018

Published:

2018-12-19

*This document was published
under the authority of the NSAI
and comes into effect on:*

2019-01-15

ICS number:

13.080.01

NOTE: If blank see CEN/CENELEC cover page

NSAI
1 Swift Square,
Northwood, Santry
Dublin 9

T +353 1 807 3800
F +353 1 807 3838
E standards@nsai.ie
W NSAI.ie

Sales:
T +353 1 857 6730
F +353 1 857 6729
W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

National Foreword

I.S. EN ISO 16133:2018 is the adopted Irish version of the European Document EN ISO 16133:2018, Soil quality - Guidance on the establishment and maintenance of monitoring programmes (ISO 16133:2018)

This document does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

For relationships with other publications refer to the NSAI web store.

Compliance with this document does not of itself confer immunity from legal obligations.

In line with international standards practice the decimal point is shown as a comma (,) throughout this document.

This page is intentionally left blank

EUROPEAN STANDARD

EN ISO 16133

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2018

ICS 13.080.01

Supersedes EN ISO 16133:2011

English Version

**Soil quality - Guidance on the establishment and
maintenance of monitoring programmes (ISO
16133:2018)**

Qualité du sol - Lignes directrices pour l'établissement
et l'entretien de programmes de surveillance (ISO
16133:2018)

Bodenbeschaffenheit - Leitfaden zur Einrichtung und
zum Betrieb von Beobachtungsprogrammen (ISO
16133:2018)

This European Standard was approved by CEN on 8 December 2018.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN ISO 16133:2018 (E)

Contents	Page
European foreword.....	3

European foreword

This document (EN ISO 16133:2018) has been prepared by Technical Committee ISO/TC 190 "Soil quality" in collaboration with Technical Committee CEN/TC 345 "Characterization of soils" the secretariat of which is held by NEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2019, and conflicting national standards shall be withdrawn at the latest by June 2019.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 16133:2011.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 16133:2018 has been approved by CEN as EN ISO 16133:2018 without any modification.

This page is intentionally left blank

INTERNATIONAL STANDARD

**ISO
16133**

Second edition
2018-12

Soil quality — Guidance on the establishment and maintenance of monitoring programmes

*Qualité du sol — Lignes directrices pour l'établissement et l'entretien
de programmes de surveillance*



Reference number
ISO 16133:2018(E)

© ISO 2018

ISO 16133:2018(E)



COPYRIGHT PROTECTED DOCUMENT

© ISO 2018

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

	Page
Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Monitoring objectives	2
4.1 General	2
4.2 Examples of monitoring purposes	2
5 Monitoring programme	3
5.1 General considerations	3
5.2 Elements of a monitoring programme	4
5.2.1 Status of the monitoring sites	4
5.2.2 Changes at the monitoring sites	4
5.2.3 Interpretation of status and changes	4
5.2.4 Statistical sampling design	4
5.2.5 Selection of sites in space	5
5.2.6 Resampling in time	5
5.3 Sampling and measurement	6
5.3.1 General	6
5.3.2 Site design and identification	6
5.3.3 Soil and site description	6
5.3.4 Sampling	6
5.3.5 Field and laboratory measurements	6
5.3.6 Specimen banking	6
5.3.7 Time interval between samplings	7
6 Data quality and quantity	7
Bibliography	9

ISO 16133:2018(E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 190, *Soil quality*, Subcommittee SC 7, *Impact assessment*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

This second edition cancels and replaces the first edition (ISO 16133:2004), which has been technically revised. The main changes compared to the previous edition are as follows:

- [Clause 2](#) has been updated;
- [Clause 3](#) has been updated, definitions that were not used in the document have been deleted;
- new subclauses have been introduced regarding sampling designs ([5.2.4](#)), sampling in space ([5.2.5](#)) and in time ([5.2.6](#));
- all examples of monitoring programmes described in Annex A have been deleted as part were outdated.

Introduction

Monitoring is the process of repetitive observation, for defined purposes, of one or more components of the environment according to pre-arranged schedules in space and time using comparable methods for environmental sensing and data collection^{[14][15]}. Monitoring schemes are used all over the world for a large number of purposes. Soil monitoring, particularly, is a long-term undertaking. The quality and the utility of the information from the monitoring is to a large degree determined by the choice of monitoring sites and by their maintenance over the years, and by appropriate quality control at all stages of the process.

Monitoring associated with industrial (contaminated) sites can involve many specific considerations, including legal requirements. The guidance in this document is not designed or intended to cover such situations.

Soil quality — Guidance on the establishment and maintenance of monitoring programmes

1 Scope

This document gives general guidance on the selection of procedures for the establishment and maintenance of programmes for long-term monitoring of soil quality. It takes into account the large number of objectives for soil-monitoring programmes.

This document is intended to help provide a basis for dialogue between parties which might be involved in a monitoring scheme.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 15903, *Soil quality — Format for recording soil and site information*

ISO 18400 (all parts), *Soil quality — Sampling*

ISO 25177, *Soil quality — Field soil description*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 11074 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1

anthropogenic change

change in soil properties caused by human activities

[SOURCE: ISO 11074:2015, 5.1.1, modified — “influence on” has been replaced by “change in”]

3.2

background concentration

concentration of an element or a substance characteristic of a soil type in an area or region arising from both natural sources and anthropogenic diffuse sources such as atmospheric deposition

[SOURCE: ISO 11074:2015, 3.5.1, modified — in the definition, “an element or” has been introduced before “a substance” and “anthropogenic” has replaced “non-natural”. Note 1 to entry has been removed.]

3.3

habitat

sum of the environment of a particular species or community (e.g. in terms of soil properties, land use, climate)

[SOURCE: ISO 23611-6:2012, 3.2.2]

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- Looking for additional Standards? Visit Intertek Inform Infostore
 - Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation
-