



Standard Guide for Acquisition of File Aerial Photography and Imagery for Establishing Historic Site-Use and Surficial Conditions¹

This standard is issued under the fixed designation D 5518; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (€) indicates an editorial change since the last revision or reapproval.

€¹ NOTE—Paragraph 1.6 was added editorially October 1998.

1. Scope

1.1 This guide is intended to assist potential users in the search for, evaluation of, and acquisition of remotely sensed aerial photography or imagery, or both, to be used for the purpose of establishing the historic site-use and other interpretable surface or near-surface conditions regionally, locally, or at a specified project location.

1.2 The instructions given in this guide identify sources of photography and imagery, and provide information pertaining to the specifications, characteristics, and availability of these data.

1.3 The major sources considered are restricted to federal and state organizations only. The sources described do not represent all possible sources of interest for environmental and engineering applications.

1.4 The values stated in both inch-pound and SI units are to be regarded separately as the standard. The values given in parentheses are for information only.

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

1.6 *This guide offers an organized collection of information or a series of options and does not recommend a specific course of action. This document cannot replace education or experience and should be used in conjunction with professional judgment. Not all aspects of this guide may be applicable in all circumstances. This ASTM standard is not intended to represent or replace the standard of care by which the adequacy of a given professional service must be judged, nor should this document be applied without consideration of a project's many unique aspects. The word "Standard" in the title of this document means only that the document has been approved through the ASTM consensus process.*

2. Terminology

2.1 Definitions:

¹ This guide is under the jurisdiction of ASTM Committee D-18 on Soil and Rock and is the direct responsibility of Subcommittee D18.01 on Surface and Subsurface Characterization.

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2.1.1 *black-and-white infrared (IR) film*—film sensitive to blue-violet through reflective IR light wavelengths (0.4 to 0.9 μm), but is exposed to only green through reflective IR wavelengths (0.5 to 0.9 μm). Absence of exposure to the blue wavelengths allows for haze penetration or higher quality data collection, or both, through a greater thickness of the atmosphere or through a portion of atmosphere where light energy transmission is relatively poorer than clear, haze-free atmospheric conditions. This type of film is used for detection of different types of vegetation, diseased plants, soil/rock conditions or land/water boundaries within the constraints of the understanding of conditions of the data collection and interpretation.

2.1.2 *color film—or conventional color or natural color film* exposed to all visible wavelengths (0.4 to 0.7 μm). Uses include identifying soil types, rock outcrops, industrial stockpiles, and shorelines within the constraints of the understanding of the conditions of data collection and interpretation. These data are limited due to "fogging", that is, poor haze penetration, associated with the exposure to blue wavelengths.

2.1.3 *color IR*—a form of false-color, reversal film that shows false colors for natural features and is exposed as is black-and-white IR film. Absence of exposure to the blue wavelengths allows for haze penetration or higher quality data collection, or both, through a greater thickness of the atmosphere or through a portion of atmosphere where light energy transmission is relatively poorer than clear, haze-free atmospheric conditions. Natural, healthy, deciduous foliage appears red where as painted, artificial foliage or coniferous vegetation appears purple. This film is also used for detection of diseased plants, insect infestation or other stressed vegetation, soil/rock conditions, including moisture content variations, or land/water boundaries within the constraints of the understanding of the conditions of data collection and interpretation.

2.1.4 *imagery*—usually reserved for reference to data collected by electro-mechanical methods. These methods include multi-spectral scanners (MSS), such as the instrument on U.S. LANDSAT satellites or the thematic mapper (TM) scanner, that collect reflected or emitted energy and record the magnitude of this energy.

2.1.5 *index or photo index*—usually a mosaic of photographs, uncorrected for geometric distortion, that has been